



*Transition to IBM Business
Process Manager Advanced
V7.5 for Developers*

(Course code WB754 / VB754)

Instructor Exercises Guide

ERC 1.0

Authorized



Training

WebSphere Education

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Summary of changes in this edition

This is a new course. The purpose of this course is based upon three principles: to introduce the new features of IBM Business Process Manager Advanced V7.5, to expound upon its architecture, and to assist developers in properly positioning the tools of the product.

About IBM Process Designer and IBM Process Center

These products, formerly under the name WebSphere Lombardi Edition, are now part of the IBM Business Process Manager V7.5 portfolio. IBM Process Designer and IBM Process Center are included in all editions of IBM Business Process Manager V7.5. However, IBM Integration Designer (formerly named WebSphere Integration Developer), IBM Process Server (formerly WebSphere Process Server), and the mediation capabilities of the WebSphere Enterprise Service Bus are only included in the advanced edition. Refer to the information center for more information regarding the different IBM Business Process Manager configurations.

The purpose of this course, however, is not to provide in-depth, technical knowledge about these products. There are other published courses, such as WB731/VB731 and WB733/VB733, which can provide that instruction. Instructors must urge students to attend one of these classes if the student requires more information about IBM Process Designer and IBM Process Center. The intent of this course is to introduce these products, and to demonstrate their relationship to those tools with which the developer may already have experience: IBM Integration Designer and IBM Process Server. It is an important part of the development process to properly use the tools of IBM Business Process Manager.

If students are already familiar with the WebSphere Lombardi Edition products, or if students do not have the prerequisite WebSphere Process Server background, then it is recommended that they study course WB751/VB751 instead.

How to position IBM Process Designer and IBM Process Center

Like Integration Designer, Process Designer can create business processes. In Process Designer, developers create business process diagrams (BPDs) in a process application. This practice is analogous to developers creating BPELs in a module in Integration Designer. All process applications are stored on a central repository: IBM Process Center.

One key difference between BPDs in Process Designer and BPELs in Integration Designer is the language. Process Designer introduces an interface that leverages elements of Business Process Modeling

Notation (BPMN), considered a standard in process notation. This interface makes modeling a business process slightly more intuitive than in Integration Designer. At the development level, BPDs are stored in the Process Center repository as proprietary XML blobs. In Integration Designer, however, they are stored as standard BPEL artifacts. At run time, BPDs are instantiated as proprietary JavaScript objects. Process Server instantiates BPELs as standard Java objects.

You may choose to think of Process Designer as a replacement for WebSphere Business Modeler and, in truth, you would not be inaccurate to think so. Process Designer offers much of the same functionality as offered in WebSphere Business Modeler, but also allows developers to build implementations for activities in a BPD.

This additional functionality may cause some confusion among the students. Why should a company choose the advanced edition (which includes Process Designer and Integration Designer) over the standard edition (which only includes Process Designer), when developers can build process diagrams and implementations in Process Designer?

There are several reasons why both of these development environments should be used in a project. The principle reason is that Process Designer is used for modeling processes, and Integration Designer is used for developing low-level, technical integration. Consider the following:

- Integration Designer separates the implementation from the module. Process Designer Implementations are built directly in a process application and cannot be shared between other process applications, unless those artifacts are built into a toolkit (which is analogous to a library). Integration Designer, however, offers developers the opportunity to build implementations across many modules, and leverage them through imports and exports. This functionality creates more of an SCA solution, offers application flexibility, and minimizes compartmentalization.
- Integration Designer offers more options in developing implementations. Process Designer has simple, but effective, editors to create business objects, human tasks, and business rules. Integration Designer, however, offers all of these features and more, in some cases even using accepted industry standards (such as business objects (SDOs) and interfaces (WSDL)). For example, Process Designer can only capture business rules in a decision table, whereas Integration Designer may capture rules dynamically in either configurable decision tables or rule sets. Process Designer, therefore, is an effective tool for high-level

business users and managers to model processes. Integration Designer is an effective tool for technical development professionals to build low-level implementations and integrate services.

- Integration Designer offers more client-facing options. Process Designer only offers one client-facing user interface for human task implementations: coaches. Coaches are easy to build and intuitive, but only offer an HTML solution as the user interface; whereas Integration Designer also offers Dojo integration, JSF, Business Space, and BPEL Choreographer.
- Integration Designer offers more power. For complex transformations or implementations, developers using Process Designer can only add JavaScript templates to their implementation code. While these templates may be sufficient for many implementations, Integration Designer offers the full power of Java in its implementations.
- Integration Designer offers more integration capabilities. Using Integration Designer, developers can integrate their solutions with WebSphere Enterprise Service Bus to handle complex mediations and integrations, or most recently, with DataPower appliances.

When presented in this light, it is obvious that a likely solution scenario involves business professionals, such as business analysts and project managers, building high-level modeling assets using IBM Process Designer. In those same projects, technical development teams could use IBM Integration Designer to choreograph and integrate services. IBM Process Center offers a repository for teams to collaboratively share their assets in the overall solution.

What's new in IBM Business Process Manager Advanced V7.5

The harmonization of the former WebSphere Lombardi Edition and WebSphere Process Server products has introduced several related features to IBM Business Process Manager.

- IBM Integration Designer now offers a Process Center perspective. This perspective is a “window” into the repository. Using this perspective, development teams can use assets in their integration modules and libraries, and then synchronize their changes to the repository.
- Assets may be shared between environments. When using the Process Center repository to share assets, development teams can consume Process Designer assets as import and export SCA components in an assembly diagram. Modeling teams, conversely,

can consume Integration Designer assets as advanced implementations to their activities.

Students learn that the editors and features of each of the tools individually have not otherwise significantly changed in this version.

Instructor exercises overview

The objectives of the exercises are for the students to successfully:

- Navigate the tools of IBM Business Process Manager Advanced V7.5, which include:
 - IBM Process Designer
 - IBM Integration Designer
 - IBM Process Center
 - IBM Process Server
- Explore business process diagrams in IBM Process Designer
- Deploy and activate business process artifacts using IBM Process Center
- Import a business process diagram into the IBM Process Center repository
- Import a module into IBM Integration Designer
- Test a business process in IBM Process Designer using Playback functions and the Inspector view
- Test a business process in IBM Integration Designer using an IBM Process Server test environment
- Manage the IBM Process Center repository
- Share assets between IBM Process Designer and IBM Integration Designer using toolkits and the IBM Process Center repository
- Associate IBM Integration Designer assets with containers in IBM Process Designer

The exercises are designed to be independent of each other. It is not necessary to complete one exercise before continuing to the next.

Exercises configuration

In the lab, each student has their own system and students work independently.



Important

Performance of the labs in the VMware environment is severely impacted if both servers are running simultaneously. It is highly recommended that the IBM Process Center instance is stopped unless required.

Exercises description

This course includes the following exercises:

- Introduction to IBM Business Process Manager Advanced V7.5
- Modeling business processes with IBM Process Designer
- Managing the IBM Process Center repository
- Implementing core business process artifacts
- Implementing business process activities

In the exercise instructions, each step is prefixed by a line. You may want to check off each step as you complete it to track your progress.

Most exercises include required sections which need to be completed. These sections may be required before performing later exercises. Some exercises may also include optional sections that you may want to perform if you have sufficient time and want an additional challenge.

The standard “Exercise instructions” section provides high-level instructions for the tasks you must perform. You need to apply the knowledge you gained in the unit presentation to perform the exercise.

Verifying the image and course materials

The student books and VMware image for this course display a release number called the edition revision code (ERC). To verify that the books and image are at the same level, compare the ERC of the VMware image to the ERC of the student books.

- ___ 1. Determine the ERC number of your course materials.
 - ___ a. Open all of the books you received (either printed or PDF).
 - ___ b. Note the ERC listed on the front page of your books. The ERC number is listed under the course title on the first page of the books as in the following example:

*Administration of IBM
WebSphere Process Server
V7*

(Course code WB722 / VB722)

Student Exercises

ERC 1.0

- ___ 2. Determine the ERC number of the VMware image.
 - ___ a. On the image desktop, open the `readme.txt` file.
 - ___ b. Note the ERC listed in the file. The ERC number is indicated on the “ERC number” line as in the following example:

```
-----
Student Workstation Virtual Machine Information
WebSphere Education

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-----

Course code: WB722/VB722
Course title: Administration of IBM websphere
Process Server V7
Application Server
ERC number: 1.0
Last modified date: April 26, 2011

Operating system: Microsoft windows XP Professional SP3
Primary account username: Administrator
Primary account password: websphere
```

___ 3. Verify the image and course materials.

- ___ a. If the ERC number on the image does not match the ERC number on the printed materials, notify your instructor that the materials are not synchronized.



Stop

Do **not** proceed with the exercises if the ERC numbers on the course materials and course image do not match; ask your instructor for further direction.

Exercise 1. Introduction to IBM Business Process Manager Advanced V7.5

Estimated time

01:00

What this exercise is about

In this exercise, students are introduced to the tools of IBM Business Process Manager Advanced V7.5, including IBM Process Designer, IBM Integration Designer, IBM Process Center, and IBM Process Server.

What you should be able to do

After completing this exercise, you should be able to:

- Launch the IBM Process Center server
- Launch IBM Process Designer
- Navigate the IBM Process Designer perspectives
- Launch IBM Integration Designer
- Examine IBM Integration Designer capabilities and preferences
- Navigate the business integration perspective and views
- Examine the modules and libraries of a business integration project
- Navigate the IBM Integration Designer graphical editors
- Launch IBM Process Server
- Deploy modules to IBM Process Server

Introduction

IBM Business Process Manager Advanced V7.5 consists of four tools: IBM Process Designer, IBM Integration Designer, IBM Process Center, and IBM Process Server. Both IBM Process Designer and IBM Integration Designer are development environments, for modeling and development teams. IBM Process Server is an SOA-compliant run time using the capabilities of WebSphere Enterprise Service Bus, and IBM Process Center maintains a repository for development assets which may be shared between teams.

This architecture has evolved from previous versions of WebSphere Process Server. Although IBM Process Server has not changed much from previous versions, IBM Integration Designer (formerly known as WebSphere Integration Developer) now includes a perspective which provides access to the IBM Process Center repository. The addition of a repository and dedicated, integrated modeling tools (IBM Process Designer) are the most recognizable changes to this version.

Requirements

Completing the exercises for this course requires a VMware image lab environment that includes the exercise support files, IBM Process Designer, and the IBM Process Center test environment.

Instructor exercise overview

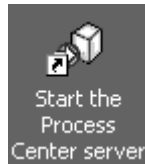
This exercise includes basic information for connecting to the IBM Process Center repository, and launching and navigating through IBM Process Designer. It also includes information for launching and navigating through IBM Integration Designer, which ought to be standard knowledge for students with experience on previous versions of the product. Finally, it includes information for launching IBM Process Server and exploring specific settings in the administration console.

Exercise instructions

Part 1: Explore IBM Process Center

In this part of the exercise, you start the IBM Process Center server and explore its capabilities in a workspace. The workspace which has been provided to you in this virtual environment contains several sample projects, called “process applications” and “toolkits”, with which you may examine the tools provided by IBM Process Center.

- ___ 1. On your Windows desktop in the VMware image, select the shortcut titled: **Start the Process Center server**. Double-click or press **Enter** to launch the shortcut.



Once you do, a DOS command window appears, and the IBM Process Center server instance starts. IBM Process Center is an application running in its own profile of WebSphere Application Server. That profile is connected to a DB2 repository where IBM Process Center stores its modeling artifacts.

It takes several minutes for IBM Process Center to start. Once it has started, the DOS command window disappears without notice or warning.



Hint

Because IBM Process Center is a profile of WebSphere Application Server, you can also start IBM Process Center from a DOS command window. If you open a DOS command window, navigate to the following directory:

```
C:\IBM\BPM\v7.5\profiles\ProcCtr01\bin
```

Execute the following command to launch the IBM Process Center server profile:

```
startServer.bat server1
```

When installed, IBM Process Center installs and configures several databases across a single instance to form the IBM Process Center repository. In the example of this course, the name of that instance is BPMINST. There are several databases installed in that instance.

- ___ 2. Once IBM Process Center has started, you may start the IBM Process Center administration console.
 - ___ a. On your Windows desktop in the VMware image, select the shortcut titled: **Process Center Console**. Double-click or press **Enter** to launch the shortcut.



- ___ b. The shortcut launches a browser window from which you may log in to IBM Process Center. Use **admin** in the **User Name** and **Password** fields.



Important

It is important to remember that there are two profiles of WebSphere Application Server in this virtual machine environment. One profile is for IBM Process Center and the other is for IBM Process Server. In this course, you are asked to start either the Process Center, or the Process Server profile, or both. It is important to distinguish between the two servers, and to start the server which is required and specified in the exercise. If you start the wrong server, your exercise is likely to fail.

A screenshot of the IBM Process Center login interface. The browser window title is 'IBM Process Center'. The page has a dark header with the IBM logo and 'Process Center'. Below the header is a light gray area with a 'Login' button. The main content area is white and contains the text 'IBM Process Center Login'. Below this text are two input fields: 'User Name:' with the value 'admin' and 'Password:' with masked characters. A 'Login' button is positioned below the password field. At the bottom of the page, there is a copyright notice: 'Licensed Materials - Property of IBM. © Copyright IBM Corporation 2000, 2011.'

If you are prompted to store the password, click **Never for This Site**.



Information

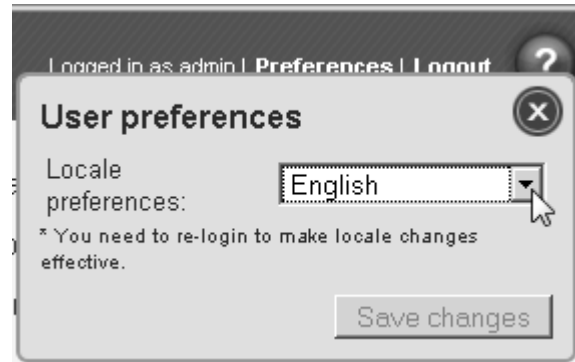
Since the IBM Process Center administration console is browser-based, you may also launch the console from any standard browser. To do so, open a browser window and use the following URL:

`http://<ProcCtr>:<port>/ProcessCenter`

In your current VMware virtual machine environment, the server and port number are:

`http://localhost:9080/ProcessCenter`

- ___ c. Maximize the administration console window, if it is not already.
- ___ d. In the upper corner of the administration console window, click **Preferences**. These preferences allow you to change the local language of your administration console. Supported languages in this virtual environment include English, French, Italian, German, Spanish, and Russian.



When you change the local language of the administration console, you may need to log in again for the language to take effect.

Do not change the local language of your console. Click the X icon to close the preferences dialog.

- ___ e. The IBM Process Center administration console is divided into four tabs: **Process Apps**, **Toolkits**, **Servers**, and **Admin**.
- ___ 3. Select the **Process Apps** tab.
This tab contains all the process applications which are stored in the repository. Process applications may be designed in IBM Process Designer, stored as snapshots, and deployed to a server. Process applications are similar to modules in IBM Integration Designer.
There are currently four process applications which are stored in the repository.
- ___ a. For each process application, you may select it as a favorite by using the star icon to toggle favorites on or off. Set the **Hiring Sample Copy (HSS2)** process application as a favorite.



- ___ b. Filter the list of process applications by clicking the **Favorites** link in the upper corner of the Process Center administration console. Using the **Favorites** link is a useful tool for focusing on specific process applications.



- ___ c. Click **All** to return to the list of all process applications.
- ___ d. When a process application is created, the user may enter optional information about the new process application. This information is stored as an arbitrary string of text. For the **Hiring Sample Copy** process application, next to the star icon, hover over the question mark icon. The optional information for this process application is displayed in a text bubble.



- ___ e. Each time a process application is modified, the update date is maintained in a line of text beneath the process application. For example, the **Hiring Sample Copy** process application was last updated on June 10, 2011. The process applications are currently sorted by this update date. Change the sort order by clicking the **Sort By** drop-down and selecting **Name**. The process applications are now sorted alphabetically.



- ___ f. When you have completed working with a process application, you may archive it. Examine the archived process applications by clicking the **Archived** link. Are there any process applications archived?



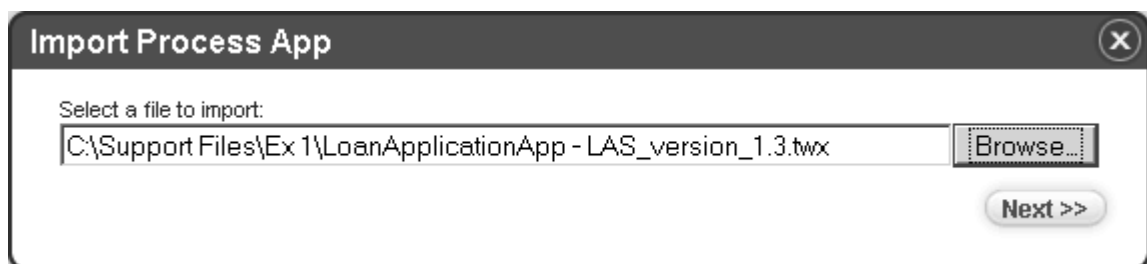
- ___ g. From the **Process Apps** tab, there are three functions which you may perform:
- **Create New Process App.** This function allows you to create a process application which is stored in the repository. Each process application requires a name, a unique acronym, and an optional description.
 - **Import Process App.** This function allows you to import a process application from an external file. A process application file has a **.twx** extension.

- **Download Process Designer.** If IBM Process Designer is not installed in your environment, this function provides IBM Process Designer to you in a compressed file.

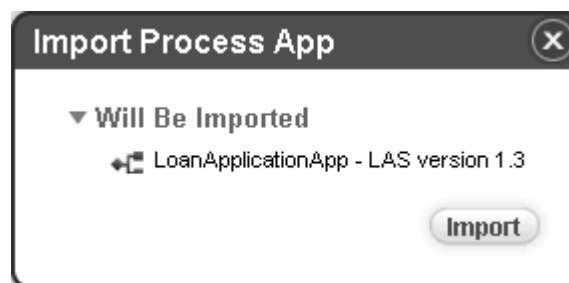
**Note**

The **Download Process Designer** link only appears in the IBM Process Center administration console. **Launch Process Designer** replaces this option when using the Process Center administration console from within IBM Process Designer.

- ___ 4. Import the Loan Application sample process application.
 - ___ a. From the **Process Apps** tab, on the right side of the pane, click **Import Process App**.
 - ___ b. In the **Import Process App** dialog, click **Browse**. A Windows Explorer dialog opens.
 - ___ c. Navigate to **C:\Support Files\Ex 1**. Select **LoanApplicationApp - LAS_version_1.3.twx** and click **Open**.



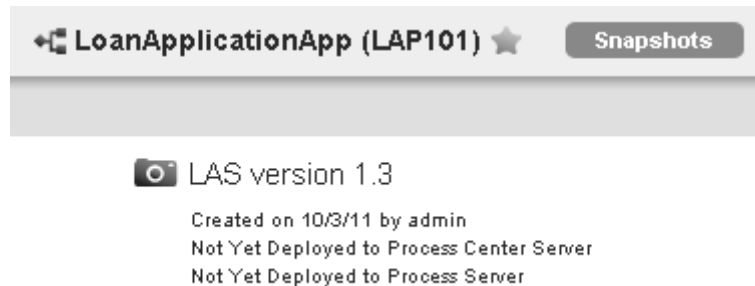
- ___ d. Click **Next**.
- ___ e. At the **Import Process App** dialog, click **Import**.



You are returned to the process application view. IBM Process Center imports the process application. When it is complete, it marks it with an update date.

- ___ f. Mark the **LoanApplicationApp** as a favorite.
- ___ g. Each process application in this view has an associated hyperlink. Click the **LoanApplicationApp (LAP101)** link.

- ___ h. The detailed process application view offers specifics about the process application. From this view, you may examine the **Snapshots** and **History** of the process application. You may also **Manage** the security options of the process application.



- **Snapshots** are analogous to versions of the process application. These snapshots may be edited, exported to an external file, cloned, deployed to an available server, deactivated (or activated, if the snapshot is deployed), or archived. The servers to which the snapshot may be deployed are listed with the snapshot details. The **LAS version 1.3** snapshot, for example, has not been deployed to any server.

You may create a snapshot from this view.
 - **History** maintains an audit log of the process application. It contains information when the process application was created, modified, archived, or when snapshots were modified.
- ___ i. Click **Manage**. The **Manage** function allows you to change the name, acronym, and description of the process application. More importantly, however, this tab allows you to specify users or groups who are allowed to read, write, or administer the process application.

LoanApplicationApp (LAP101) ★ Snapshots History **Manage**


Process App Name:

Acronym:
 ?

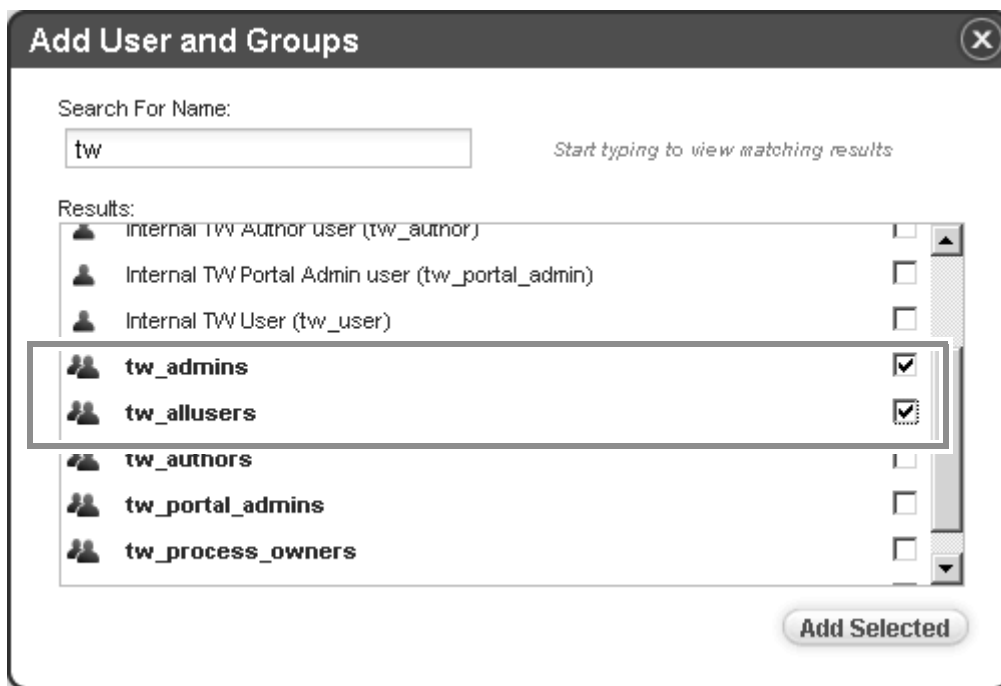
Description:

Manage Access to Process Library

Add Users/Groups

Read	Write	Admin	
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	 Administrator (admin)

- ___ j. Under the **Manage Access to Process Library** heading, click **Add Users/Groups**.
- ___ k. In the **Search For Name** field, type `tw`. Process Center searches against the user and group registry to find names which qualify. The matches are arranged by users and groups.
- ___ l. Select the `tw_admins` and `tw_allusers` groups and click **Add Selected**.



The groups are added to the access list.

- ___ m. Click the **Write** and **Admin** columns for **tw_admins**, and click the **Write** column for the **tw_allusers** group.

Manage Access to Process Library



- ___ 5. Click the **Toolkits** tab.

This tab contains all the toolkits which are stored in the repository. Toolkits contain reusable artifacts, similar to libraries in IBM Integration Designer. Toolkits contain the same artifacts which may be in a process application, except these assets are intended to be shared between other toolkits and process applications. They are not intended for deployment.

There is only one toolkit in your current virtual machine environment. This toolkit, **System Data**, is the default toolkit provided with IBM Process Designer. **System Data** is available with every new process application or toolkit.

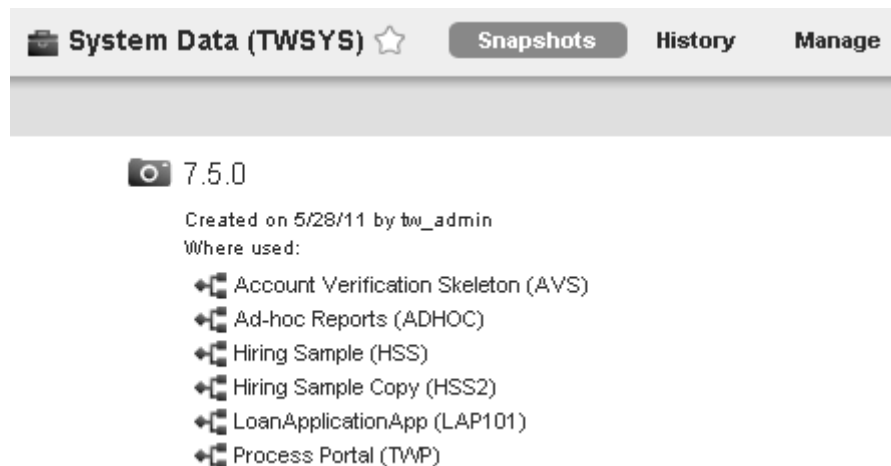
Toolkits may be sorted, marked as favorites, or archived, just like process applications. The functionality provided in the toolkit view is similar to the

functionality provided with process applications: you may create new toolkits, import a toolkit from an external file, or open the Process Designer tool.

- ___ a. Click **System Data**, the hyperlink associated with the toolkit.

The functionality in the detailed toolkit view is similar to the functionality provided with the detailed process application view. You may view the snapshots of a toolkit, view its history, or manage the toolkit. Toolkits may not be deployed. Consequently, the snapshots of a toolkit may only be exported, cloned, or archived.

Instead of potential deployment servers, the snapshot view for a toolkit shows where the toolkit is used.

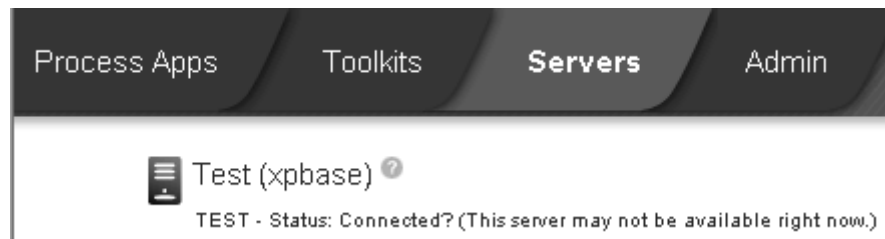


- ___ b. Click the **Manage** tab. Since the **System Data** toolkit is a default toolkit provided with IBM Business Process Manager Advanced V7.5, its name, acronym, and optional description may not be edited.

- ___ 6. Click the **Servers** tab.

This tab contains all the servers to which you may deploy a process application snapshot. These servers are typically Process Server servers, including production, testing, or staging environments.

Currently, in your virtual machine environment, there is only one server available: **Test (xpbases)**. In this example, it is an instance of IBM Process Server. The status of the server indicates that it may currently be offline.

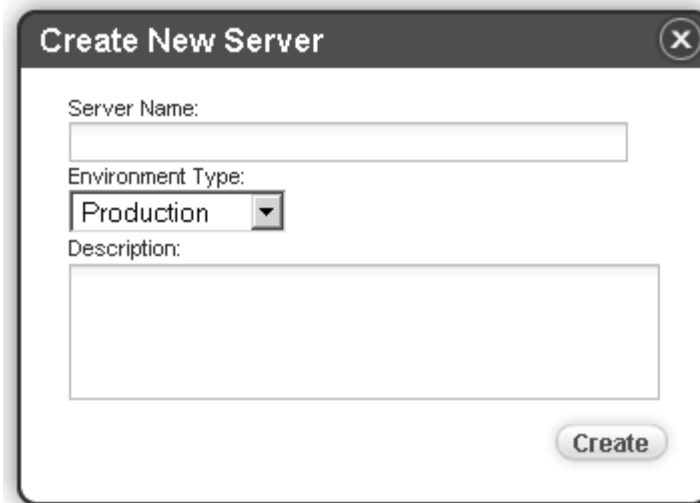


You may configure the server or take it offline. You may only configure the server if it is running. Since the server is not running, this link is not functional.

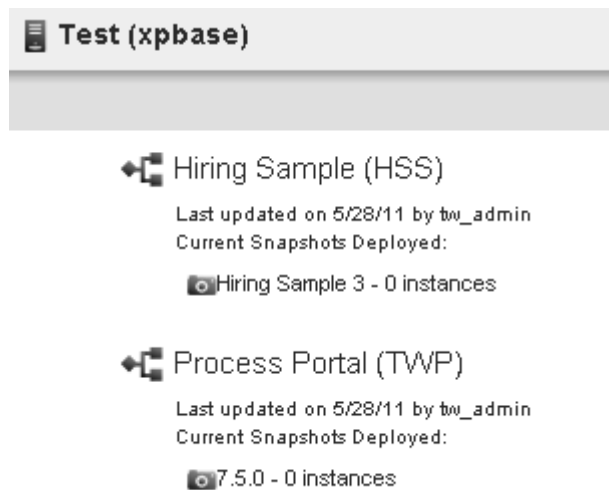
- ___ c. Click **Add a New Offline Server** on the right side of the pane. This function allows you to add a server connection.

A rectangular button with a light gray background. On the left is a plus sign icon, followed by the text "Add a New Offline Server" in a standard sans-serif font.

- ___ d. In the **Create New Server** dialog, you may name the server, decide its environment type, and provide an optional description. The possible environment types include **Production**, **Development**, **Test**, and **Staging**. Authorized users can install snapshots of process applications on connected servers. For each server, you can see the snapshots that are currently installed.

A dialog box titled "Create New Server" with a close button (X) in the top right corner. It contains three input fields: "Server Name:" with a text box, "Environment Type:" with a dropdown menu showing "Production", and "Description:" with a larger text box. A "Create" button is located at the bottom right of the dialog.

- ___ e. Do not create a server connection. Click the X icon in the upper corner of the **Create New Server** dialog to close the dialog.
- ___ f. Click the **Test (xpbases)** hyperlink associated to the server. The detailed server view opens.



The contents of this view are the process applications which are installed on the server. This view also shows you the snapshots of each process application which have been installed. The only process application snapshots which have been installed on this server are **Hiring Sample (HSS)** and **Process Portal (TWP)**.



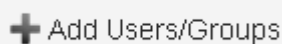
Information

The Process Portal is a web-based interface provided with IBM Process Center which allows users to administer instances of process applications. It is an interface which is provided by default with IBM Business Process Manager and may not be removed. It is analogous to the BPEL Process Choreography Explorer that is provided with IBM Process Server.

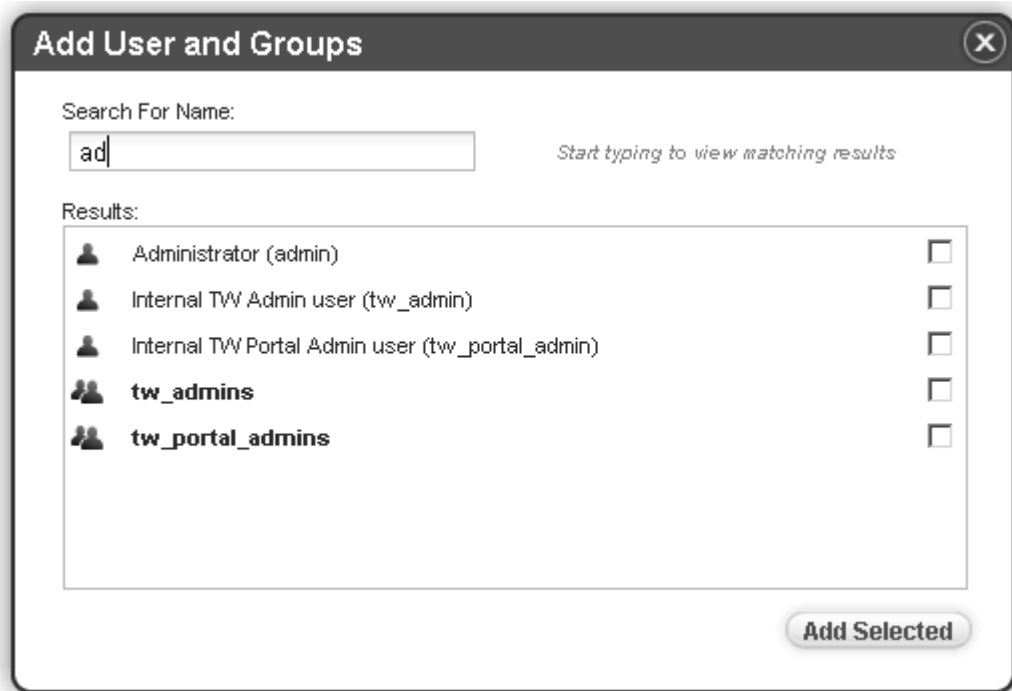
- ___ 7. Click the **Admin** tab. This administrative tab contains a list of users and user groups, as well as a log file of import and export functions.

From this tab, you may create new users and groups.

- ___ a. On the right side of the pane, click **Add Users/Groups**.



- ___ b. In the **Add User and Groups** dialog, type **ad** in the **Search For Name** field. As you type, Process Center fetches users and groups registered with IBM Business Process Manager which meet that name. You may only add users or groups which are part of the IBM Business Process Manager user or group table.



Information

The IBM Business Process Manager user table has been established when the product was installed in this virtual machine. The valid users are:

- tw_admin
- tw_author
- tw_user
- tw_webservice
- tw_portal_admin
- tw_runtime_server
- bpmAuthor
- admin

The list of valid groups includes (but is not limited to):

- tw_admins
- tw_authors
- tw_portal_admins
- tw_process_owners
- tw_allusers
- Debug

In a production environment, you may establish this list of users and groups during product installation. Users and groups are maintained in the common IBM Business Process Manager database (BPMDB).

- ___ c. Do not add any users or groups. Click the X icon in the upper corner of the **Add User and Groups** dialog to close the dialog.
- ___ 8. Close the browser window, but do not log out.

Part 2: Explore IBM Process Designer

IBM Process Designer is a development environment for modeling business process diagrams (BPDs) and their associated artifacts, such as data objects and implementations. It is a different environment than IBM Integration Designer. The purpose of IBM Process Designer is to allow high-level design and implementation of business processes in the form of process applications and reusable toolkits. The purpose of IBM Integration Designer, however, is a highly technical development which supports an integrated solution.

Another difference between the two development environments is that IBM Process Designer reads its artifacts from and writes them directly to the IBM Process Center repository. You must have an active connection to the repository in order to use IBM Process Designer. IBM Integration Designer, however, stores assets in local Eclipse workspaces for synchronization with the repository at a later time.

- ___ 1. Return to the Windows desktop. Do not stop IBM Process Center. You must have the IBM Process Center server running in order to launch IBM Process Designer.
- ___ 2. On the Windows desktop of your VMware image, locate the icon labeled **IBM Process Designer 7.5**.

Double-click the icon or press **Enter** to launch IBM Process Designer.



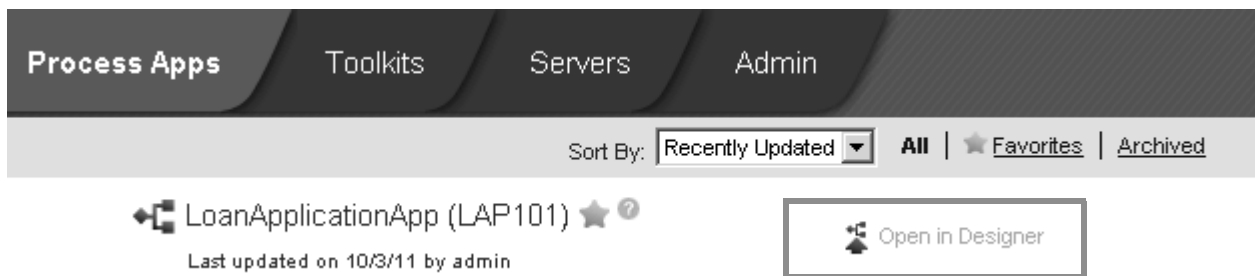
- ___ 3. The splash screen for IBM Process Designer appears as the development environment begins to load. If you logged out, or if your server connection timed out, you are prompted to enter a user name and password in order to connect to the IBM Process Center repository. Enter `admin` for the user name, and `admin` as the password. Otherwise, the modeling environment opens.

The default view of IBM Process Designer is the Process Center repository. This view resembles the Process Center administration console in every way, except one: each process application may be opened in the Designer.

As well, whereas the Process Center administration console was browser-based, IBM Process Designer is Eclipse-based. The Process Center perspective in IBM Process Designer is a web-based facade to the Process Center repository.

Take some time to explore the functionality of the Process Center perspective in IBM Process Designer. It is identical to the functionality offered in the administration console.

- ___ 4. From the **Process Apps** tab in the Process Center perspective, click the **Open in Designer** link associated with **LoanApplicationApp (LAP101)**



IBM Process Designer is made up of three different views. These three views are offered as buttons in the upper left corner of the window. The three buttons are:

- **Designer** view, which allows the user to build business process artifacts. These artifacts include processes, user interfaces (called “coaches”), implementations, data objects, and other artifacts and external files.
- **Inspector** view, which allows the user to examine running instances of the process application or toolkit assets for testing and debugging purposes.
- **Optimizer** view, which allows the user to build and analyze runtime samples, in order to optimize process application or toolkit assets.

- ___ 5. Close IBM Process Designer. You use the tool extensively in another exercise.
- ___ 6. Stop the IBM Process Center server.
- ___ a. On the Windows desktop, double-click the shortcut named **Stop the Process Center server**. A DOS window opens and begins to stop the server.
- ___ b. If you are prompted to enter a user ID and password, use **admin** for both.
- ___ c. Wait for the server to shut down completely. The server is shut down when the DOS window closes.



Troubleshooting

There are two WebSphere Application Server profiles in the virtual machine for this course: one profile for IBM Process Center and one for IBM Process Server. Unless otherwise noted, only one of these profiles needs to be running at any given time. If both of these servers are running, there is a severe impact on the performance of your virtual machine. For this reason, you must shut down the IBM Process Center profile before you begin the next section. In an upcoming instruction, you start the IBM Process Server profile.

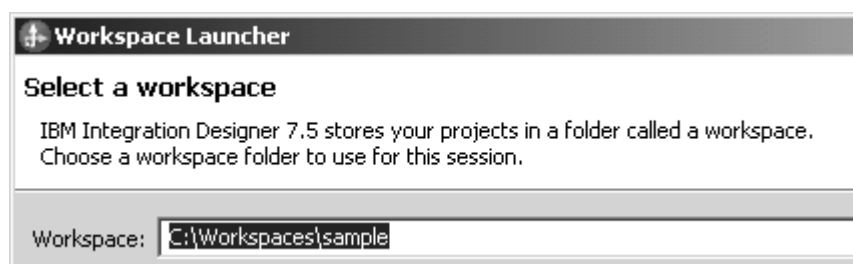
In a production environment, it is likely that these two profiles are installed on separate machines.

Part 3: Explore IBM Integration Designer

In this portion of the exercise, you start IBM Integration Designer and explore its capabilities in an empty workspace. An Eclipse workspace is a collection of projects and other physical resources that you are currently developing in the workbench. A workspace corresponds to a directory in the file system that contains all of the various source files and resources used in a project. In addition, your workspace contains any personalization preferences you have set.

In IBM Business Process Manager Advanced V7.5, IBM Integration Designer is a highly technical development environment used by development teams to create development assets. These assets are synchronized with the IBM Process Center repository, and deployed to IBM Process Server.

- ___ 1. Start IBM Integration Designer, create a workspace, and examine the **Getting Started** tab.
 - ___ a. Double-click the IBM Integration Designer V7.5 shortcut on your desktop or click **Start > Programs > IBM > IBM Integration Designer > IBM Integration Designer 7.5**.
 - ___ b. At the **Workspace Launcher** dialog, change the **Workspace** location to:
C:\Workspaces\sample
Do **not** enable "Use this as the default and do not ask again."



**Note**

The file path for your workspace is case-sensitive and matches the file system names. When you create a workspace in a Windows environment, ensure that your file path length does not exceed the Windows limitation of 256 characters. Failure to use short workspace file paths can lead to problems when building, deploying, or deleting your applications.

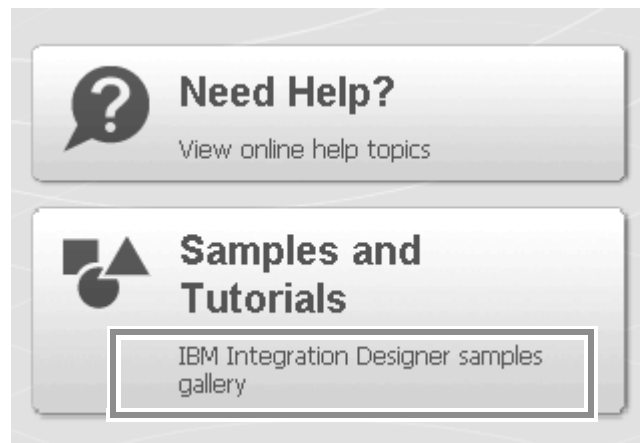
- ___ c. Click **OK**.
- ___ d. The Business Integration perspective is the default perspective for developing in Integration Designer. A **Getting Started** tab is displayed in the Business Integration perspective.

The **Getting Started** page includes links to help topics, samples and tutorials, basic concepts, and other resources. The **Getting Started** page is divided into the following sections:

- **What do you want to do?** — Interactive task flows teach you how to work with a process application or create a service.
- **What do you want to know?** — This section teaches you basic concepts, BPEL processes, service integration, and what is new in this version of the product.
- **Other Resources** — This section provides access to developerWorks, the IBM Education Assistant, support documents, and frequently asked questions (FAQ).

In addition, you have access to:

- **Help** — online help documents
 - **Samples and Tutorials** — sample applications and tutorials that demonstrate the use of IBM Integration Designer
 - **Change Environment** — choice of development environments for working with IBM Process Server, WebSphere Enterprise Service Bus, or WebSphere Data Power
- ___ e. On the **Getting Started** page, click the **IBM Integration Designer samples gallery** link.



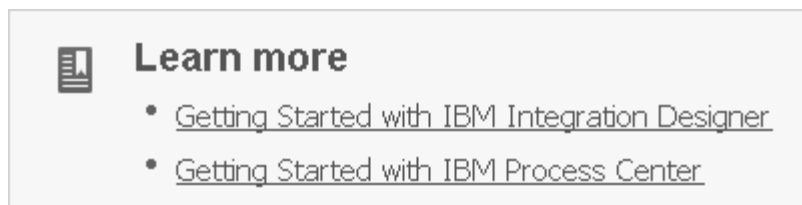
Note the samples available. In the **More Samples** section, you may click **Retrieve** to download additional samples from the web (when connected).

- ___ f. Close the **Samples and Tutorials** and **Getting Started** tabs by clicking each of the **X** icons:



Note

When all editors are closed, a link appears that allows you to open the Getting Started tabs for either IBM Integration Designer or IBM Process Center.



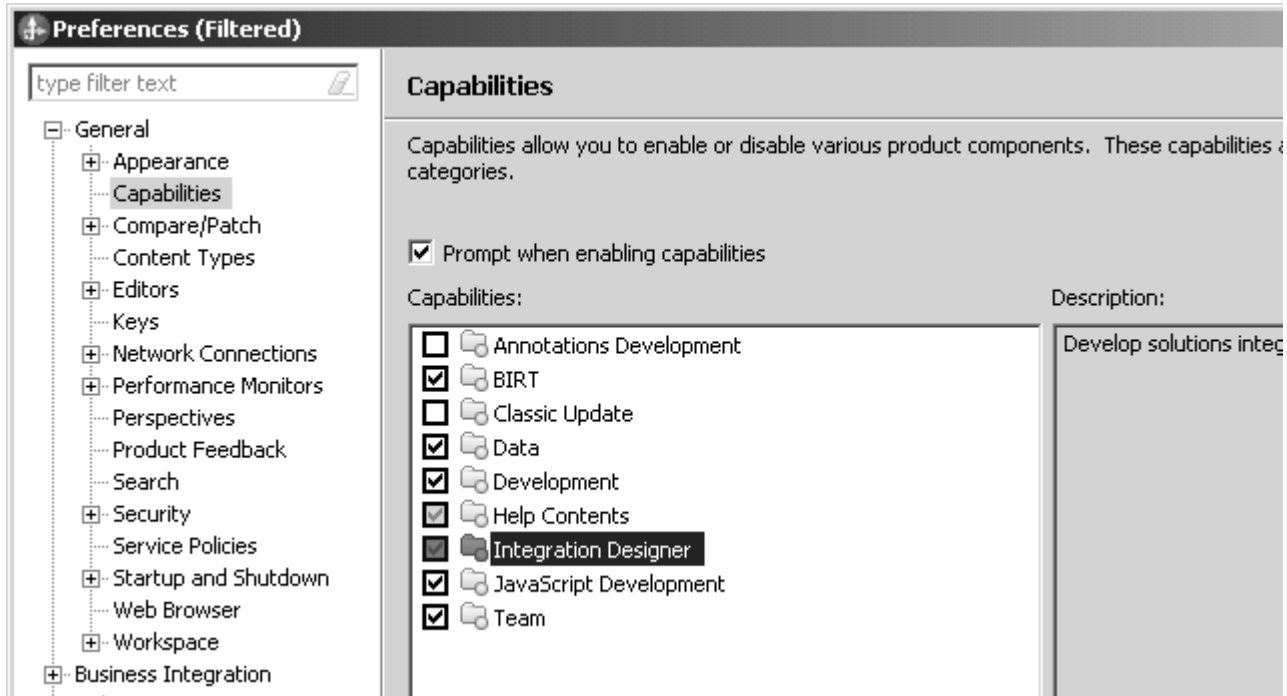
The next time you open your workspace, the Getting Started tab is not displayed. You can open it by clicking **Getting Started with IBM Integration Designer** or by choosing **Help > Getting Started > IBM Integration Designer** from the menu options.

Explore Capabilities

Through Eclipse, IBM Integration Designer provides a filtering function known as capabilities. Capabilities are one of many workspace preferences you can configure. With capabilities, you can choose to hide or show tools during application development.

- ___ 1. From the menu options, choose **Window > Preferences**.

- ___ 2. View the capabilities that are currently enabled for the workbench.
- ___ a. In the **Preferences** dialog, expand **General** and select **Capabilities**. There is one category related to the business integration tools.



- ___ b. To see a list of the functions in this category, click the **Integration Designer** option (not the check box), and click the **Advanced** button.
- ___ c. In the **Advanced** dialog, expand **Integration Designer**.



This Integration Designer category has four functions:

- **Core integration development** — provides tools, functions, and related documentation for development of bottom-up integration of applications and services to create:
 - Libraries
 - Business objects
 - Interfaces
- **IBM Process Server development** — includes advanced tools for top-down development of integrated business solutions to create and test components, such as:
 - Modules and module assemblies
 - Data maps
 - Customized visual snippets
 - Processes
 - Business rules
 - Human tasks
- **WebSphere DataPower development** — includes tools, functions, and related documentation to create and test artifacts that can be deployed to WebSphere DataPower Appliances, such as:
 - DataPower libraries
 - Business objects
 - Interfaces
 - XML maps

By default, this environment is not enabled.

- **WebSphere Enterprise Service Bus development** — includes core enterprise service bus integration development tools and also provides tools, functions, and related documentation to create and test:
 - Mediation modules and assemblies
 - Mediation flows



Note

When you click the name of a capability, a description displays in the **Description** section.

- ___ d. Click **Cancel** to return to the **Preferences** dialog.

Explore Preferences

In addition to capabilities, there are many other preferences you can configure. For more information about each of the preferences, consult the online help. In this portion of the exercise, you examine a few of the more commonly used preferences settings.

To examine the IBM Integration Designer preferences:

- ___ 1. In the **Preferences** dialog, in the navigation pane, expand **Business Integration**. Note the available preferences, including the settings for the Integration Designer assembly editors.
- ___ 2. In the navigation pane, expand the **Server** section and click **Runtime Environments**. Note the available runtime environments and the ability to add and remove them:

Server Runtime Environments	
Add, remove, or edit server runtime environments.	
Server runtime environments:	
Name	Type
IBM Process Server v7.5	IBM Process Server v7.5
WebSphere ESB Server v7.5	WebSphere ESB Server v7.5



Note

The WebSphere ESB server run time is intended for customers who purchased WebSphere Enterprise Service Bus (without IBM Process Server) and need a suitable test environment. Customers who purchase IBM Business Process Manager Advanced V7.5 can deploy mediation modules to the IBM Process Server runtime environment and do not need to use a separate enterprise service bus test environment.

- ___ 3. Click **Cancel** to close the **Preferences** dialog.

Explore Help

The help menu is a great resource for finding additional information about all aspects of IBM Integration Designer. In this part of the exercise, you explore the options available from the help menu. The help menu in IBM Integration Designer contains the following options (you are encouraged to open each of these resources and explore as you read):

- **Getting Started** — This option opens the Welcome pages associated with either IBM Integration Designer or Process Center for Integration Designer. You can view either of these pages when a workspace is first launched. Each page contains links to Samples and Tutorials, Task Flows, Reference Materials, and Patterns (reusable solutions that encapsulate a tested approach to solving a common architecture, design, or deployment task in a particular context).
- **Help Contents** — This option opens the IBM Integration Designer Information Center on the local machine.

- **Search** — This option launches a help view that allows you to search multiple information sources concurrently; for example, the web, the tutorials gallery, eclipse.org, IBM developerWorks, and the WebSphere Application Server Information Center.
- **Dynamic Help** — This option provides information relevant to the current task you are performing in the workbench.
- **Key Assist** — This option provides you with a list of relevant keyboard shortcuts. Press **Esc** to close the list.
- **Samples and Tutorials** — This option provides links to the IBM Integration Designer application samples available from the “Getting Started” page.
- **Manage Licenses** — This option provides status and update capacity for the current license.
- **IBM Forms Feedback** — This option links to a web page that allows you to provide feedback on the IBM Forms Help.
- **Support** — This option provides you with several useful links to external support resources such as the IBM user forums, IBM developerWorks, the IBM Education Assistant, IBM Technical Support, and the IBM Support Portal.
- **Technology Quickstarts** — This option provides links to tutorials, including: watch-and-learn tutorials that are viewed like movies, play-and-learn tutorials that guide you through a simulation, do-and-learn tutorials for hands-on learning, and tours containing multimedia displays that teach you conceptual information.
- **Check for Updates, Install New Software, and IBM Installation Manager** — each of these options provides access to the IBM Installation Manager, which walks you through installing new or updating existing functionality.
- **Performance** — This option provides features such as immediately reducing the amount of memory used, generating diagnostic information, and enabling system profiling.
- **About IBM Integration Designer 7.5** — This option displays version information and information about installed features and plug-ins.



Note

In addition to the resources provided directly in IBM Integration Designer, you can also download and install the IBM Support Assistant from ibm.com. The support assistant allows you to search for an answer to your question or problem in many different locations at the same time. You can also get speedy access to critical product information or run free troubleshooting and diagnostic tools on a troublesome application. You can shorten the amount of time it takes to resolve an issue by using these automated data gathering and submission tools.

Explore the Business Integration perspective

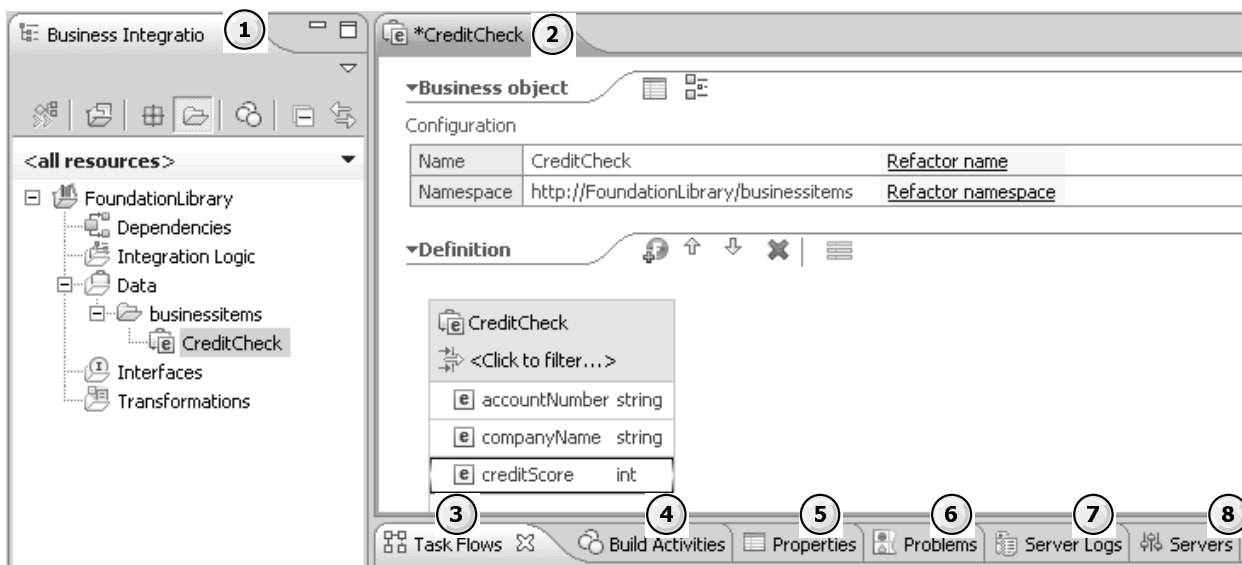
In this portion of the exercise, you navigate the different views and perspectives in IBM Integration Designer. A perspective is a specific arrangement of views in the workbench. The user's active perspective controls which views are shown on the workbench page and their positions and sizes. A view is typically used to navigate a hierarchy of information, open an editor, or display properties for a selected object. Users can switch between perspectives as they change tasks.

Each perspective provides a set of functionality aimed at accomplishing a specific type of task or working with specific types of resources. Therefore, opening a different perspective opens a different group of views. For example, the Java perspective combines views that you would commonly use while editing Java source files, while the Debug perspective contains the views that you would use while debugging applications.

___ 1. Examine the Business Integration perspective.

By default, when you launch IBM Integration Designer, the Process Center perspective is opened. In a previous section, you opened the Business Integration perspective. The vast majority of your integration development is done in the Business Integration perspective. The Business Integration perspective has the following views and panes (you are encouraged to open each of these components and explore as you read).

The following diagram represents a sample screen capture from IBM Integration Designer, and may not necessarily reflect your view.



1. **Business Integration view** — This view provides a logical view of the key resources in each module, mediation module, and library. Non-SCA projects are displayed in the Business Integration view, which allows you to edit projects without switching perspectives.

2. **Editor pane** — When you open a resource from the Business Integration view with an editor, the resource is displayed in the editor pane.
3. **Task Flows view** — Task flows provide a way to learn related concepts and tasks in an interactive manner. A task flow puts together all of the different tasks that are required to achieve a goal (such as creating a service or creating a business process). Task flows are presented as a series of grouped tasks, where each task is a link. When you click the links, wizards and editors are launched along with information windows, so that you are learning while you perform tasks.
4. **Build Activities view** — This view helps you manage builds and enables you to view the build and server status of business integration projects. It also enables you to view the operational state of supported servers.
5. **Properties view** — In this view you can see information about a selected artifact. When using the Properties view with editors, you are able to modify properties of elements you select.
6. **Problems view** — This view helps you debug errors by providing message text. You can see additional help for the problem message (including an explanation and recommended actions) by selecting a message and pressing F1.
7. **Server Logs view** — This view is used to display the contents of the server console and server log files. It automatically displays console output for each server that is started.
8. **Servers view** — Use the Servers view to create new test servers (local or remote). Use the view for testing and deploying business integration applications and for viewing the status of deployed modules.

Explore the modules and libraries of a project

In this portion of the exercise, you navigate a business integration project. The first act in developing an application in IBM Integration Designer is to set up one or more projects to hold your resources. Projects are the largest structural units in your workspace.

A project is an organized collection of folders or packages. Projects are used for building, version management, sharing, and organizing resources related to a single work effort. The projects that you work with most in IBM Integration Designer are modules, libraries, and mediation modules, but there are several types of projects available:

- **Integration solution** — An integration solution is a nondeployable project that is used solely to reference other projects in the workspace, such as modules, mediation modules, libraries, component test projects, Java projects, and simple projects. Integration solutions help you organize groups of related projects and more easily perform common actions on the projects, such as sharing them in a team environment. When you create an integration solution, an integration solution diagram is automatically generated. You can open the integration solution diagram in the integration solution editor and view the relationships between the related projects that are referenced in the integration solution.

- **Modules** — Modules provide the business services for your application, which are modeled as Service Component Architecture (SCA) components wired together in a module assembly. Modules are the basic units of deployment to the IBM Process Server runtime environment.
- **Mediation modules** — Mediation modules provide mediation service applications, which intercept and modify messages that are passed between existing services (providers) and clients (requesters) that use those services. Mediation modules can be deployed on WebSphere Enterprise Service Bus or IBM Process Server. You learn more about mediation modules later in this course.
- **Libraries** — Often interfaces, data types, transformations, business calendars, and web service ports need to be shared so that resources in more than one module can use them. The library is a project that is used to store these resources. Libraries are associated with modules through dependencies.
- **Component test project** — In order to test modules and applications in the workspace, you may want to create test suites that contain sample data. A component test project is a project that is kept separate from your working, production data. It contains testing tools such as test suites, execution traces, server configurations, emulators, and collections of sample data called “data pools”.
- **Modules and library dependencies** — When developing and deploying integration applications, you may need to declare dependencies for your modules, mediation modules, and libraries. Use the dependency editor to manage these required resources.
- **Namespaces** — A namespace is a logical container in which all names are unique; that is, a name can appear in multiple namespaces but cannot appear twice in the same namespace.
- **Other projects** — You can also bring Java projects into your application. In some cases, you might choose to do bottom-up development by designing Java resources and then importing them into your IBM Integration Designer application. If you have Java code that is used in a business integration module or mediation module, create a Java project and add the Java project as a dependency in the module that uses the code. For more information about using Java projects, see the topics “Bottom-up development” and “Using Java projects with a module” in the information center.



Note

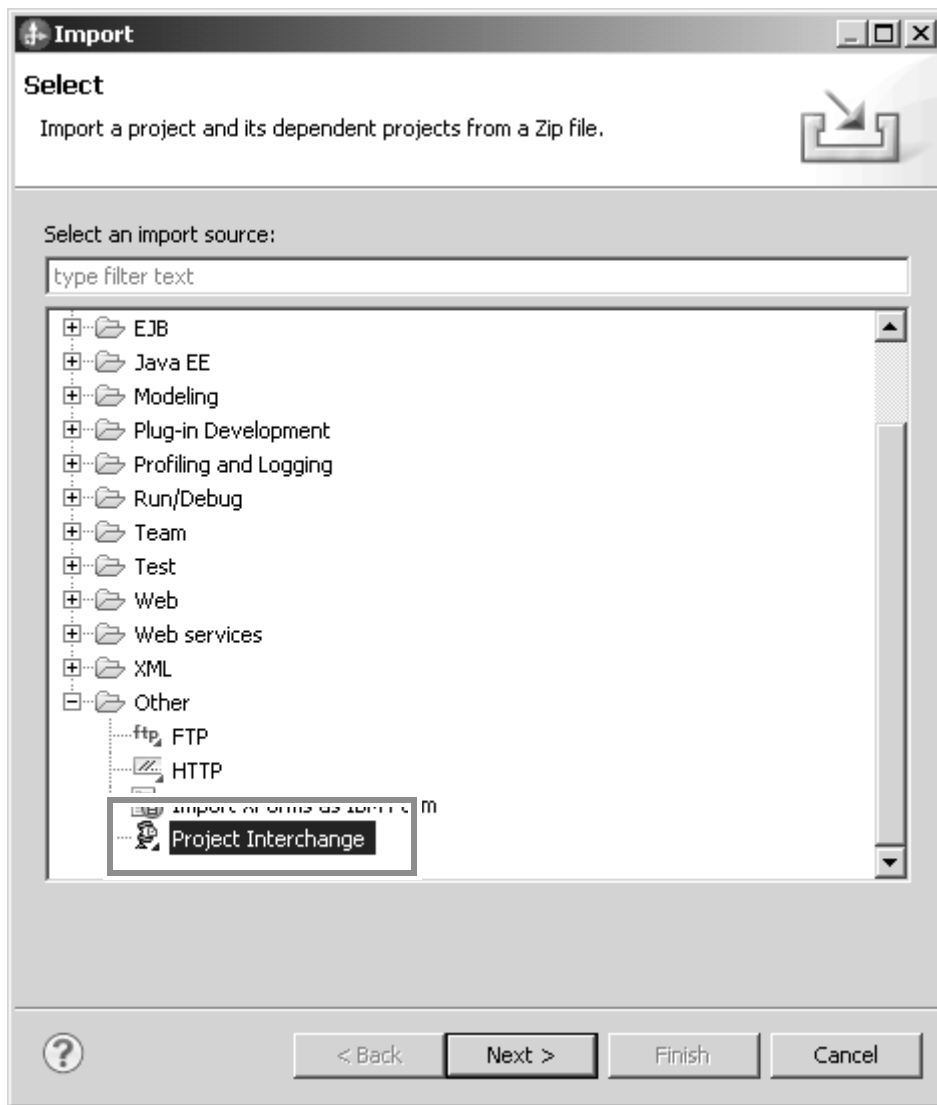
You can easily tell modules from integration modules in the Business Integration view by examining the icons. The icon for a mediation module is a folder with an envelope. The icon for an integration module is a folder with a document.

Explore the structure of business integration modules

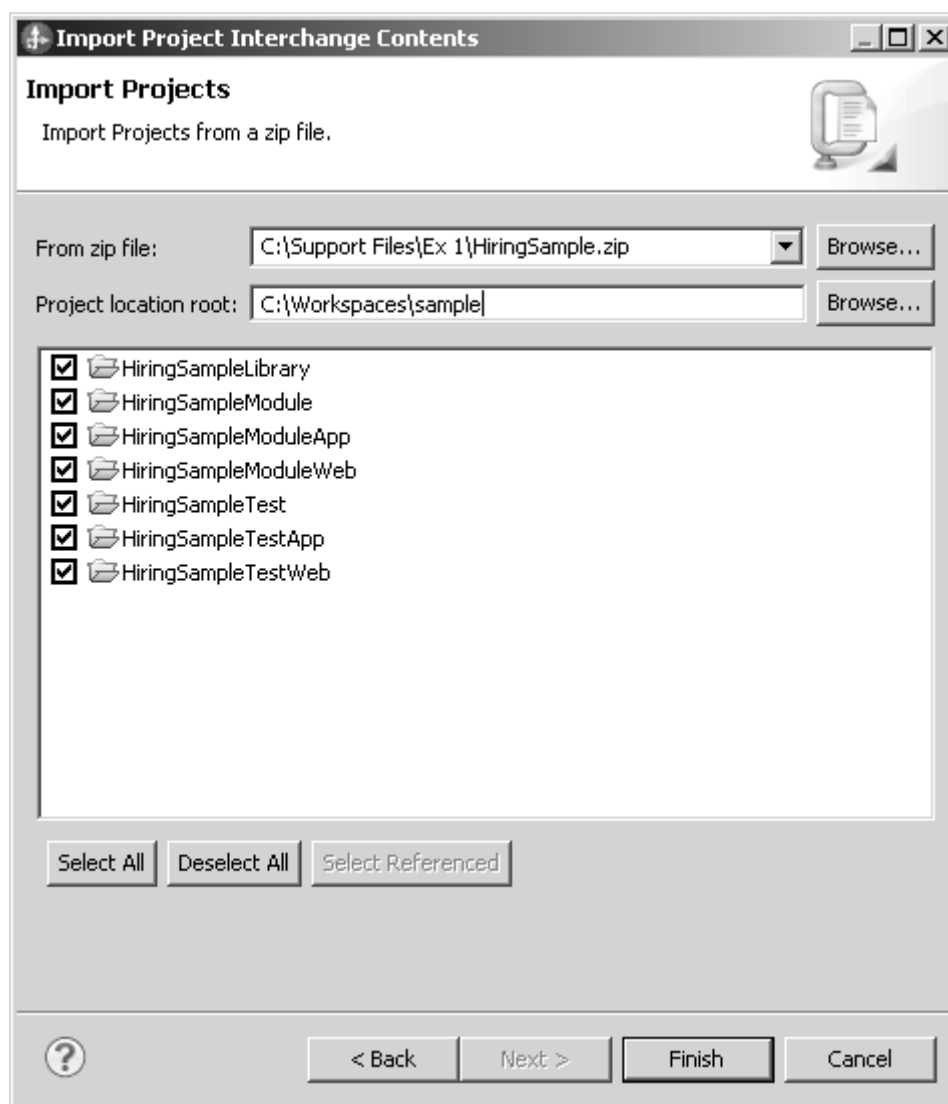
The Business Integration perspective has a Business Integration view, which provides a logical view of the key resources in each module, mediation module, and library. Within each project, the resources are categorized by type. Logical resources displayed in the navigation tree do not necessarily have a one-to-one mapping to files. For example, a business process that appears in the integration logic section may comprise several different physical files. You can also use the Business Integration view to navigate through Java and Java EE resources.

To navigate the resources in a business integration module:

- ___ 1. If you opened another perspective in the previous section, switch to the Business Integration perspective. Click **Window > Open Perspective > Business Integration**.
- ___ 2. Import the **HiringSample** process application.
 - ___ a. Right-click in the **Business Integration** view and select **Import...**
 - ___ b. In the Import window, select **Other > Project Interchange**.



- ___ c. Select **Next**.
- ___ d. On the **Import Project Interchange Contents** dialog, select the **Browse** button next to the **From zip file** field.
- ___ e. Browse to the C:\Support Files\Ex 1 directory and select HiringSample.zip.
- ___ f. Click **Open**. The contents of the hiring sample project interchange file are displayed.



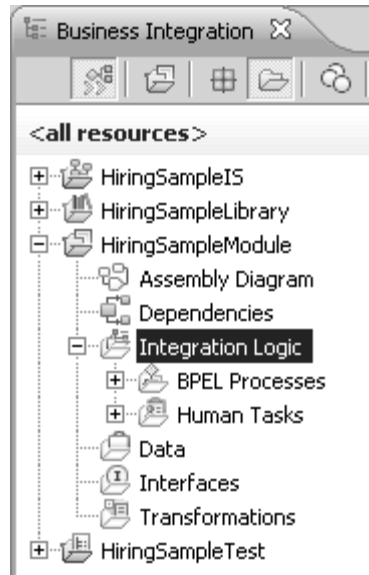
- ___ g. Click **Finish**. Allow Integration Designer a few moments to import the project file.
- ___ 3. Click the plus symbol to expand the contents of `HiringSampleModule`.

Each business integration module consists of the following resources:

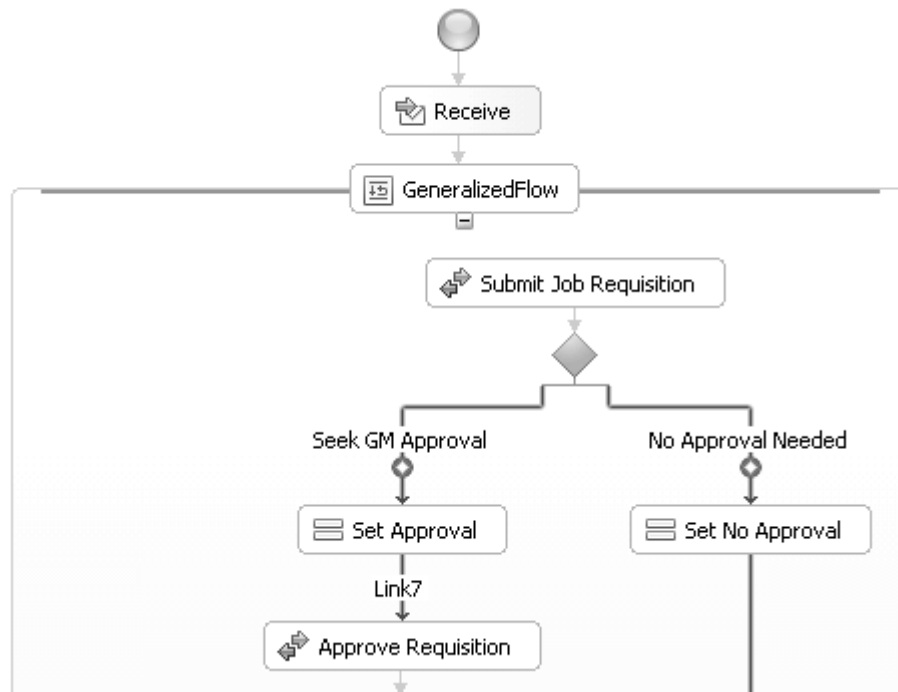
- **Assembly Diagram:** The building blocks of a business solution are Service Component Architecture (SCA) components wired together to form modules that can be deployed to IBM Process Server. The IBM Integration Designer assembly editor enables you to build applications by assembling the SCA components on an assembly diagram.
- **Dependencies:** Double-click Dependencies to open the dependencies editor to see and manage the dependencies on other modules or libraries.
- **Integration Logic:** The Integration Logic section contains all of the artifacts that perform specific business tasks. Business processes, human tasks, and mediation flows are some examples of integration logic implementations.

- **Data:** The Data section contains all of the data representations. For example, it contains business objects and user-defined simple types.
- **Interfaces:** The Interfaces section contains WSDL interfaces that define the operations exposed by a service that are available to callers.
- **Transformations:** The Transformations section contains data transformations such as data maps and XSL (Extensible Stylesheet Language) transformations.

- ___ 4. Expand the **Integration Logic** section in the `HiringSampleModule` and examine the artifacts.



- ___ 5. In the Integration Logic section, there are **BPEL Processes** and **Human Tasks**. Expand **BPEL Processes** and double-click **OpenNewPosition**. The BPEL process opens in the editor.

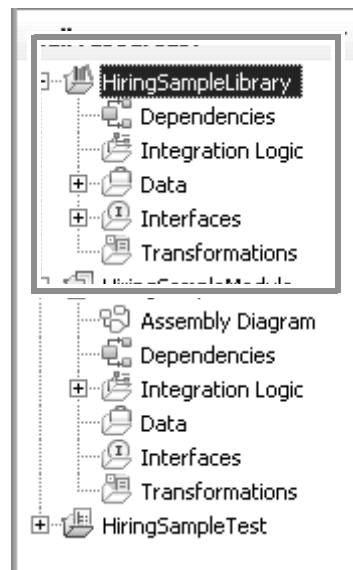


- ___ 6. Take some time to examine the steps of this business process. Can you determine the intended activities along each step of the process? Do not change the process.
- ___ 7. Close any open tabs when you are done. Do not save any changes, if you are prompted to do so.

Explore the structure of libraries

Each of the artifacts you create in a library can also be included in a module. For example, you can create a business object in the Data section of a module, and you can create a business object in the Data section of a library. However, artifacts created in a module cannot be shared among projects, while artifacts created in a library can be shared among projects.

- ___ 1. Examine the artifacts in the `HiringSampleLibrary`.
 - ___ a. In the **Business Integration** view, expand `HiringSampleLibrary`.
 - ___ b. Note the artifacts that can be included in the library:



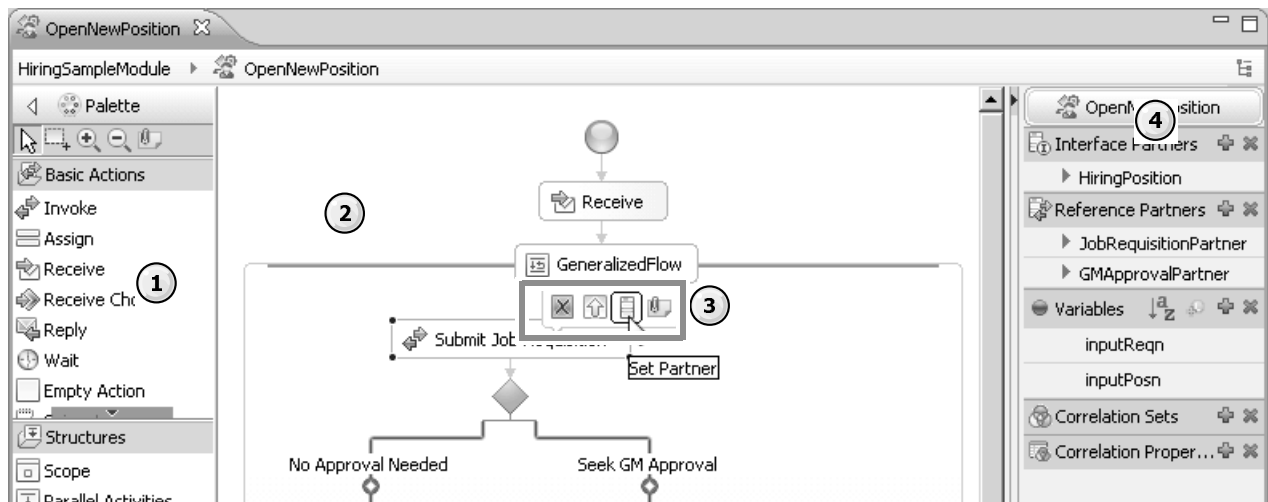
- **Dependencies:** Double-click Dependencies to open the dependencies editor to see and manage the dependencies on other modules or libraries.
- **Integration Logic:** Integration Logic contains all of the artifacts that perform specific business tasks. Business processes, human tasks, and mediation flows are some examples of integration logic implementations. When defined in a library, these artifacts can be reused in other projects.
- **Data:** The Data section contains all of the data representations. For example, it contains business objects and user-defined simple types. Defining these data representations in a library allows you to leverage them in other applications.
- **Interfaces:** The Interfaces section contains WSDL interfaces that define the operations exposed by a service that are available to callers. Interfaces in a library can be used in multiple modules by several components.
- **Transformations:** The Transformations section contains data transformations such as data maps and XSL transformations. Data transformations defined in a library are available for use by multiple applications.

Explore the graphical editors

In this portion of the exercise, you navigate two of the more commonly used IBM Integration Designer editors. An editor is typically used to edit or browse a document or input object. Modifications made in an editor follow an open-save-close model, much like an external file system editor. The platform text editor and Java editor are examples of workbench editors. Each editor has the same basic structure, but the specific areas available differ depending upon the object you are editing.

To open editors in IBM Integration Designer:

- ___ 1. Open `OpenNewPosition` in the business process (BPEL) editor.
 - ___ a. In the Business Integration view, expand **HiringSampleModule > Integration Logic > BPEL Processes**.
 - ___ b. Double-click `OpenNewPosition` to open the business process (BPEL) editor.
 - ___ c. The business process editor (as well as similar editors) is divided into the following components. Feel free to explore as you read.



- 1) **Palette** — The palette is the area to the left of the canvas that houses the activities you click and drag onto the canvas to build your process. The icons are organized under several different headings that act as toggles. Click the heading once, and the icons remain hidden until you click that heading again. The complexity of the palette is reduced and hides those icons that you rarely use.

You can gather frequently used items into a favorites folder by right-clicking the icon and selecting **Add to Favorites**. (If the favorites folder does not exist, it is created.) To hide the text labels once you are familiar with the icons, right-click the palette, and toggle the **Show Labels** setting. To increase the size of the icons, right-click the palette, and toggle the **Use Large Icons** setting.

- 2) **Canvas** — The canvas is the white, empty area in the middle of the editor that you use to compose your business process. When you click and drag an activity from the palette onto the canvas, the icon beside your cursor has a plus (+) symbol, and you can decide where you want to drop the activity. When the cursor becomes a crossed-out circle, continue moving the cursor until it becomes a plus sign again.

- 3) **Action bar** — The action bar is a miniature dialog that appears next to certain activities when you select them, and it contains a series of one or more icons that are relevant to that activity.
 - 4) **Tray** — The tray displays the partners, variables, correlation sets, and correlation properties that are associated with your process (each of these items are defined later in the course). To see the interfaces and operations associated with the partners, click the small gray arrow beside the name of the partner. To create an item, click the green **+** icon; or to remove one, highlight it and click the red **X** icon. Click the gray horizontal arrow to collapse or expand the tray.
- ___ d. After examining the components, close the process editor by clicking the **X** on the **OpenNewPosition** tab. If you changed any components, do not save them.
- ___ 2. Open the **GMApproval** human task editor.
- ___ a. In the **Business Integration** view, expand **HiringSampleModule > Integration Logic > Human Tasks**.
 - ___ b. Double-click **GMApproval** to open the human task editor.

▼To-do Task

Name	GMApproval	Display Name
------	------------	--------------

►Service Interface

▼People Assignment (Receiver)

Potential Creators	Everybody
Potential Owners	Everybody

▼User Interface

User Interface
BPEL Process Choreographer Explorer

▼Escalation

Ready Claimed Subtask started

- ___ c. View the options in the human task editor. After examining the task, close the editor.

Part 4: Explore IBM Process Server

In this portion of the exercise, you learn about the IBM Integration Designer test environment. In IBM Integration Designer, the integration test client is the designated tool for testing modules and components. The test client features a sophisticated user interface

that enables you to easily manage and precisely control your tests. The testing is generally performed on the interface operations of your components, which enables you to determine whether the components are correctly implemented and the references are correctly wired.

Using the integration test client, you can test:

- An individual module
- A set of interacting modules
- An individual component
- A set of interacting components

When you begin a test by invoking an operation, the integration test client automatically detects the deployment state of the modules to be tested. If any of the modules have not been deployed, the deployment location wizard is automatically opened to enable you to select the server where you want to deploy the modules. If the server is not already running, it is started automatically.

Test configurations

Test configurations are used to control your tests. A test configuration specifies one or more modules to test. Each of these modules may include zero or more emulators for components or references in the module and zero or more monitors for the wires in the module. When you open the integration test client, a default test configuration is automatically created that you can immediately use for testing. The default test configuration is often all that you need for testing your modules and components. However, you can choose to edit and customize the default test configuration, or you can create and edit one or more new test configurations.

Emulators

The integration test client enables you to use emulators to emulate components and references in your modules. During a test, when control flows to an emulated component or reference, the integration test client intercepts the invocation and routes it to the associated emulator. There are two types of emulators:

- Manual
- Programmatic

A manual emulator is an emulator for which you need to specify runtime response values for an emulated component or reference. If you are testing an entire module, the default test configuration contains manual emulators for all unimplemented components and unwired references. However, suppose that you are only testing a set of components or an individual component within a module. In this case, the default test configuration contains manual emulators for any other components that were not selected for testing regardless of whether they are implemented or not. Although manual emulators are added by default, you can remove the manual emulators or redefine them as programmatic emulators.

When a manual emulator is encountered during a test, a manual emulate event is generated. The test pauses to enable you to manually specify some output parameter values or throw an exception for the emulated components or references. By comparison, when a programmatic emulator is encountered during a test, a programmatic emulate event is generated. The output parameter values or exceptions are automatically provided by a Java program contained in a visual snippet or Java snippet.

Monitors

When the integration test client generates a default test configuration, or when you add a test configuration, monitors are automatically added for any component wires and exports that are found in the modules of the test configuration. When you invoke an operation and run a test, these monitors listen for any requests and responses that flow over the wires and exports. If a request is detected, a request event is generated. If a response is detected, a response event is generated. These events show parameter data that flows across the wires, and they are added to the test trace of events that are displayed in the events area of the integration test client.

Although monitors are automatically added for the wires and components of your test configuration modules, you can edit the monitors and change whether they monitor requests, responses, or both. You can also remove the monitors or add additional monitors as required.

When you run a test by invoking an operation, several different types of events are generated over the course of the test. These events are either interactive or informational. Interactive events require you to manually specify values before the test can continue. By comparison, informational events are purely informative and do not require you to perform any action. For example, an invoke event is an informational event that confirms when an operation has been successfully invoked. For a complete list of events generated by the integration test client, consult the “Unit testing” topic in the information center.

Testing an individual component

In this section, you perform a test on an individual component in the hiring sample application. You examine the emulators and the monitors that are automatically configured by the integration test client, and you learn how to save test data.

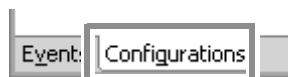
There are three different use cases in the hiring sample application:

- The hiring requisition is for a new job, which does not need approval.
- The hiring requisition is for an existing job, which needs approval from the general manager.
- The general manager may approve or reject requisitions for existing job actions.

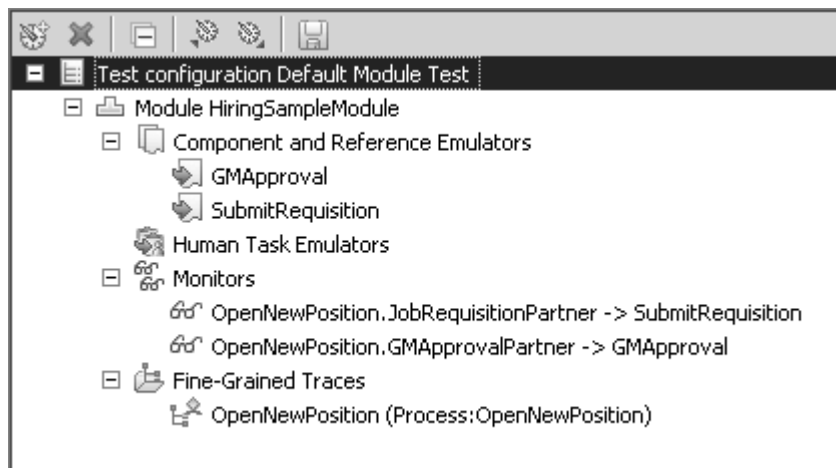
In the component test, you verify the functionality of the first use case where a requisition for a new job is automatically approved.

To run an individual component test:

- ___ 1. Test the `OpenNewPosition` component using the **Test Component in Isolation** option.
 - ___ a. In the Business Integration view, expand `HiringSampleModule`.
 - ___ b. Double-click **Assembly Diagram** to open the assembly editor.
 - ___ c. On the assembly editor canvas, right-click the `OpenNewPosition` SCA component and choose **Test Component in Isolation** from the menu. The `OpenNewPosition` component contains the process that determines whether a job requisition can be automatically approved.
 - ___ d. In the integration test client, click the **Configurations** tab in the lower left corner of the window:



- ___ e. Examine the emulators and monitors.



- ___ f. Switch back to the **Events** tab (in the lower left corner of the test window) and navigate to the **Initial request parameters** table on the right side of the **Detailed Properties** section.

Initial request parameters:

☒ Value editor ☐ XML editor

Name	Type
inputReqn	Requisition
reqNum	string
requestor	string
status	string
approvalNeeded	boolean
date	date

___ g. Type the following information in the **Value** column. To aid data entry, you may use the maximize icon to maximize the input window to full screen.

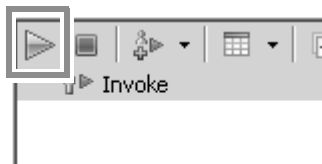
- **inputReqn**
 - **reqNum:** 001
 - **department:** Sales
 - **location:** Atlanta
- **inputPosn**
 - **positionType:** New
 - **lastName:** Smith
 - **firstName:** John

Name	Type	Value
inputPosn	Position	[ab]
positionType	string	[ab] New
replacement	Person	[ab]
lastName	string	[ab] Smith
firstName	string	[ab] John
supervisor	string	[ab]
startDate	date	[ab] 2011-04-24
payLevel	string	[ab]
payType	string	[ab]

___ h. Click the **Continue** button on the Events toolbar:

Events

This area displays the events in a Detailed Properties sections. [More](#)





Information

If you are testing a component for the first time, several actions occur before you are able to test:

- i. The IBM Process Server test environment starts.
- ii. The **HiringSampleModule** is published to the server.
- iii. The **HiringSampleModule** is started.

This procedure may take several minutes to complete. In this time, you may see a message that the module will be automatically published to the server. Enable the **Do not show this message again** check box and click **OK**.

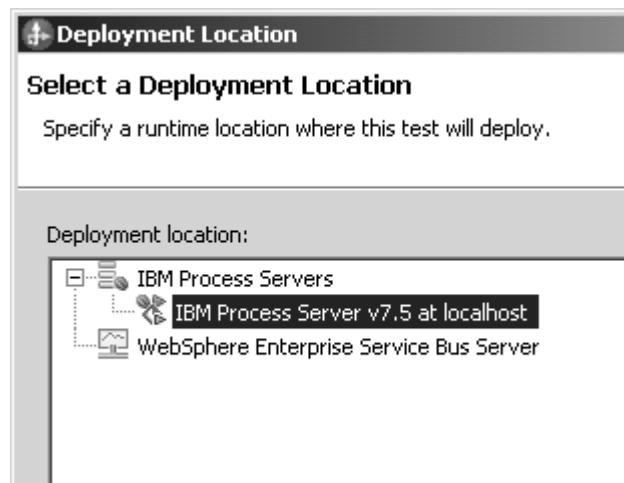
This procedure starts the server automatically. In future instructions, you start the server by other means.



Note

If you maximized the input window, minimize it to locate the **Events** toolbar.

- ___ i. When the **Deployment Location** dialog appears, select **IBM Process Server v7.5 at localhost**.



- ___ j. Accept the remaining default options and click **Finish**.
- ___ k. At the **User Login — Default Module Test** dialog, accept the default options and click **OK**. By default, the user name and password are both set to `admin` during IBM Integration Designer installation.

- ___ l. Publishing takes several minutes to complete. After publishing completes, the **Automatically Publish** dialog appears. Select **Do not show this window** again and then click OK.



Note

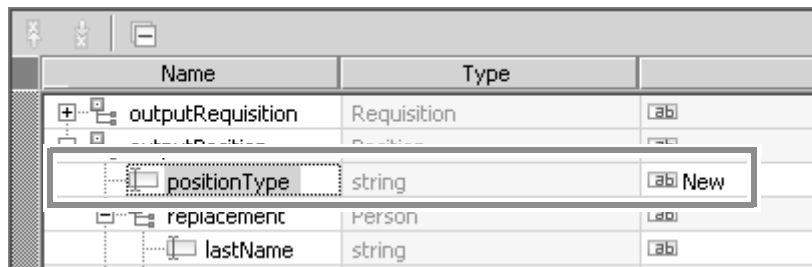
You are not selecting the “Use this location as the default” and “Use the authentication settings in the preference” options because they are specific to the individual workspace. Each of your exercises has a specific workspace, so you would have to select these options for each exercise.

- ___ m. Switch to the **Servers** view and expand **IBM Process Server v7.5**. You can see the state of the modules (and the server) in the Servers view.

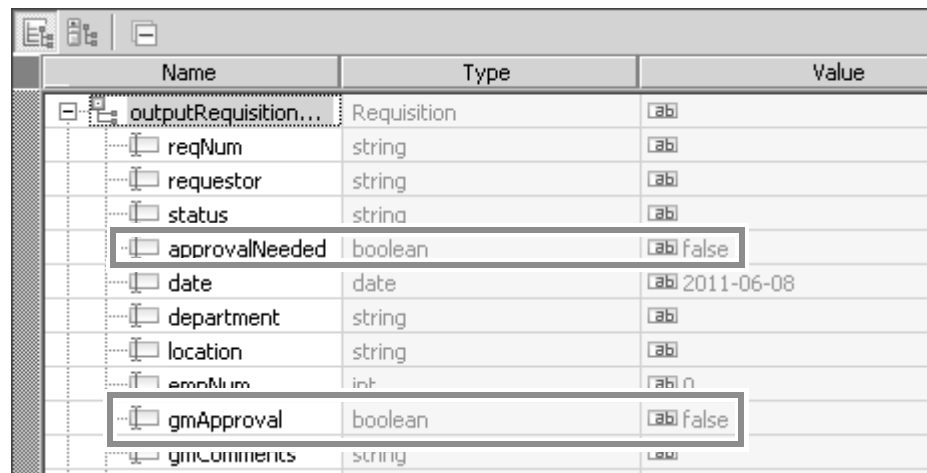


- ___ n. The test stops at the human task emulator **SubmitRequisition**. A client GUI appears for the user to enter requisition details. For this test, the most important detail is to set the job position to **New**.

In the **Detailed Properties** section of the Integration Test Client, set the **outputPosition > positionType** value to: **New**



- ___ o. Click the **Continue** button again. It might take several moments for the test to complete. The test is complete when the **Response** event appears in the trace.
- ___ p. When the test is complete, select the **Response (OpenNewPosition <--SubmitRequisition)** event.
- ___ q. Examine the **Response parameters**.



Name	Type	Value
outputRequisition...	Requisition	[ab]
reqNum	string	[ab]
requestor	string	[ab]
status	string	[ab]
approvalNeeded	boolean	[ab] false
date	date	[ab] 2011-06-08
department	string	[ab]
location	string	[ab]
empNum	int	[ab] n
gmApproval	boolean	[ab] false
gmComments	string	[ab]

Because the job requisition was new, no approval was needed, so the **approvalNeeded** and **gmApproval** fields have both been set to `false`.

Explore the test server profile

The IBM Process Server run time installed in IBM Integration Designer has a default server profile. You can alter this profile, create new profiles, and reset your profile back to the original state it was in after the installation. Using profiles, you can deploy and test modules on a remote IBM Process Server or WebSphere Enterprise Server Bus runtime environment. For example, you may want to deploy your application to the preproduction environment of your organization. For instructions on creating a server profile, consult the information center.

To view the configuration of the IBM Process Server V7.5 test run time:

- ___ 1. Switch to the **Servers** view.
- ___ 2. Right-click **IBM Process Server v7.5** and choose **Open** from the menu.
- ___ 3. Examine (but do not change) the server properties in the server configuration editor. In particular, note the following options.
 - **Automatically publish when resources change** — This option in the **Publishing** section automatically republishes modules to the local test server if you modify them while they are deployed.

▼ Publishing
 Modify settings for publishing.

☒ Never publish automatically
☐ Automatically publish when resources change
☐ Automatically publish after a build event

Publishing interval (in seconds):

Select publishing actions:

☒ Deploy J2EE Modules

- **Terminate server on workbench shutdown** — This option in the **Server** section stops the test server when you close IBM Integration Designer.

Server connection types and administrative ports

☐ Automatically determine connection settings
☒ Manually provide connection settings

Connection Type	Port	Default port	Description
<input checked="" type="checkbox"/> IPC	9634	9633	Record
<input type="checkbox"/> RMI	2810	2809	Design
<input checked="" type="checkbox"/> SOAP	8881	8880	Design

[Test Connection](#)

☒ Enable universal test client
☐ Terminate server on workbench shutdown
☐ Use HTTPS when running server resources

- ___ 4. After examining the server properties, close the server configuration editor.
- ___ 5. Stop the server.
 - ___ a. In the **Servers** view of IBM Integration Designer, right-click **IBM Process Server v7.5 at localhost** and click **Stop**.
 - ___ b. Wait for the server to completely stop. The server is stopped when the status changes to
 [Stopped, Synchronized]
- ___ 6. Close IBM Integration Designer. If you are prompted to save any modifications, click **No**.

End of exercise

Exercise 2. Modeling business processes with IBM Process Designer

Estimated time

01:00

What this exercise is about

In this exercise, you use IBM Process Designer to review an existing business process diagram (BPD) and test the BPD using the playback and inspector tools. You then model a partially completed BPD and use the snapshot tool to save a copy of the BPD to the IBM Process Center repository.

What you should be able to do

After completing this exercise, you should be able to:

- Open a business process activity in IBM Process Designer
- Explore a business process in IBM Process Designer
- Use the Playback feature to examine a running business process in IBM Process Designer Inspector
- Use a coach to work with a running business process
- Wire activities together in a business process

Introduction

IBM Process Designer is a member of a family of products available with IBM Business Process Manager V7.5. It is a single authoring environment which developers and other business users may use to design business process applications in editors which use Business Process Modeling Notation (BPMN).

Activities which are added to a process application may be implemented with a wide variety of activities, including tasks invoked by the system, scripts, or user-initiated tasks (also called human tasks). IBM Process Designer provides a simple editor for creating client-facing user interfaces, called “coaches”, for allowing users to interact with the business process.

Business processes may be tested in the integrated test environment called the “inspector”. The inspector allows a user to play back a sample of the business process. During playback, you may monitor it for performance and usability, launch the coaches in a standard browser, and follow the progress of the process application steps.

Completed business process applications can be saved to a centralized repository maintained by IBM Process Center. Different stages of the process can be saved to the repository, allowing dynamic version control. These “snapshots” can then be deployed to the server for execution.

This exercise provides an introduction to the IBM Process Designer development environment and furnishes an overview of some of the tools associated with creating, editing, and managing process applications.

Requirements

Completing the exercises for this course requires a VMware image lab environment that includes the exercise support files, IBM Process Designer, and the IBM Process Center test environment.

Instructor exercise overview

This exercise demonstrates the functionality of IBM Process Designer from a high level. Many business processes can be created from within Process Designer for deployment and execution on IBM Process Server. The purpose of this lab is to introduce the concepts of business processes, business process development, Business Process Management Notation (BPMN), and IBM Process Center to the student.

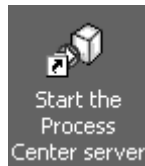
Exercise instructions

Part 1: Launch IBM Process Designer

In this portion of the exercise, you start IBM Process Designer and explore some basic business process diagrams and some of the capabilities.

IBM Process Designer maintains its business process definition (BPD) artifacts in the centralized IBM Process Center repository. In order to create, view, edit, or inspect a BPD in IBM Process Designer, you must first start the IBM Process Center repository.

- ___ 1. On your Windows desktop in the VMware image, select the shortcut titled: **Start the Process Center server**. Double-click or press **Enter** to launch the shortcut.



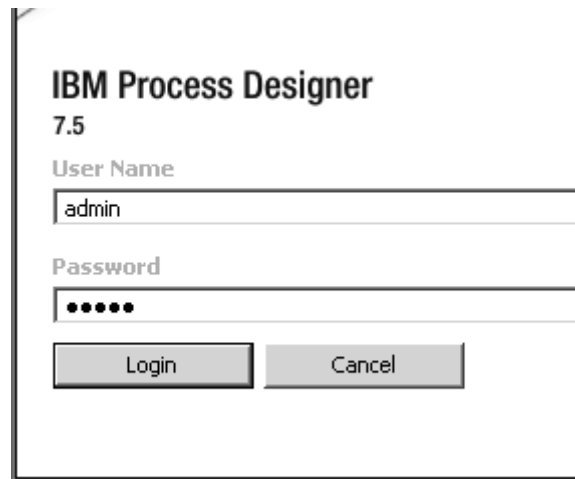
Once you do, a DOS command window appears, and the IBM Process Center server instance starts. IBM Process Center is an application running in its own profile of WebSphere Application Server. That profile is connected to a DB2 repository where IBM Process Center stores its artifacts.

It takes several minutes for IBM Process Center to start. Once it has started, the DOS command window disappears without notice or warning.

- ___ 2. Once IBM Process Center has started, you may start IBM Process Designer and log in to the IBM Process Center repository.
 - ___ a. On the Windows desktop of your VMware image, locate the icon labeled **IBM Process Designer 7.5**



- ___ b. Double-click the icon or press **Enter** to launch IBM Process Designer.
 - ___ c. As the splash screen for IBM Process Designer begins to load, you are prompted to enter a user name and password in order to connect to the IBM Process Center repository. Enter **admin** for the user name, and **admin** as the password.



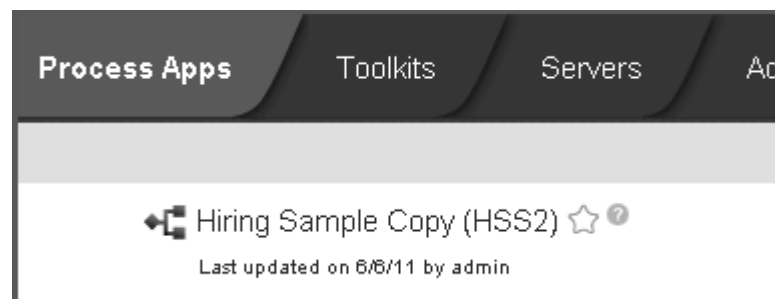
- ___ d. Select **Login**. After a few moments, IBM Process Designer starts.

Part 2: Open a business process activity in IBM Process Designer

Once IBM Process Designer completes authenticating your user name and password against the IBM Process Center repository, the Process Center perspective of IBM Process Designer is displayed. This perspective contains a list of all the process applications which are currently in your IBM Process Center repository. Process applications are containers in the IBM Process Center repository for the process models and supporting implementations created in IBM Process Designer. Ordinarily, a process application includes process models, the services to handle implementation of activities and integration with other systems, and any other assets required to run the processes.

You may use this perspective to work with these business process applications by opening the process application in design mode, using IBM Process Designer, or to create snapshots of the process applications. A snapshot captures the state of the library items within a process application or toolkit at a specific point in time. Snapshots usually represent a milestone or are used for playbacks or for installation.

- ___ 1. The Process Center repository is the default view. Open the **Hiring Sample Copy** process application in IBM Process Designer.
- ___ a. In IBM Process Designer, click the **Process Center** icon at the top of the pane to switch to the Process Center perspective.
- ___ b. Locate the process application named **Hiring Sample Copy (HSS2)**.



There are currently no snapshots of this process application in the IBM Process Center repository.

- ___ c. On the right side of the **Hiring Sample Copy** process application page, click **Open in Designer**.

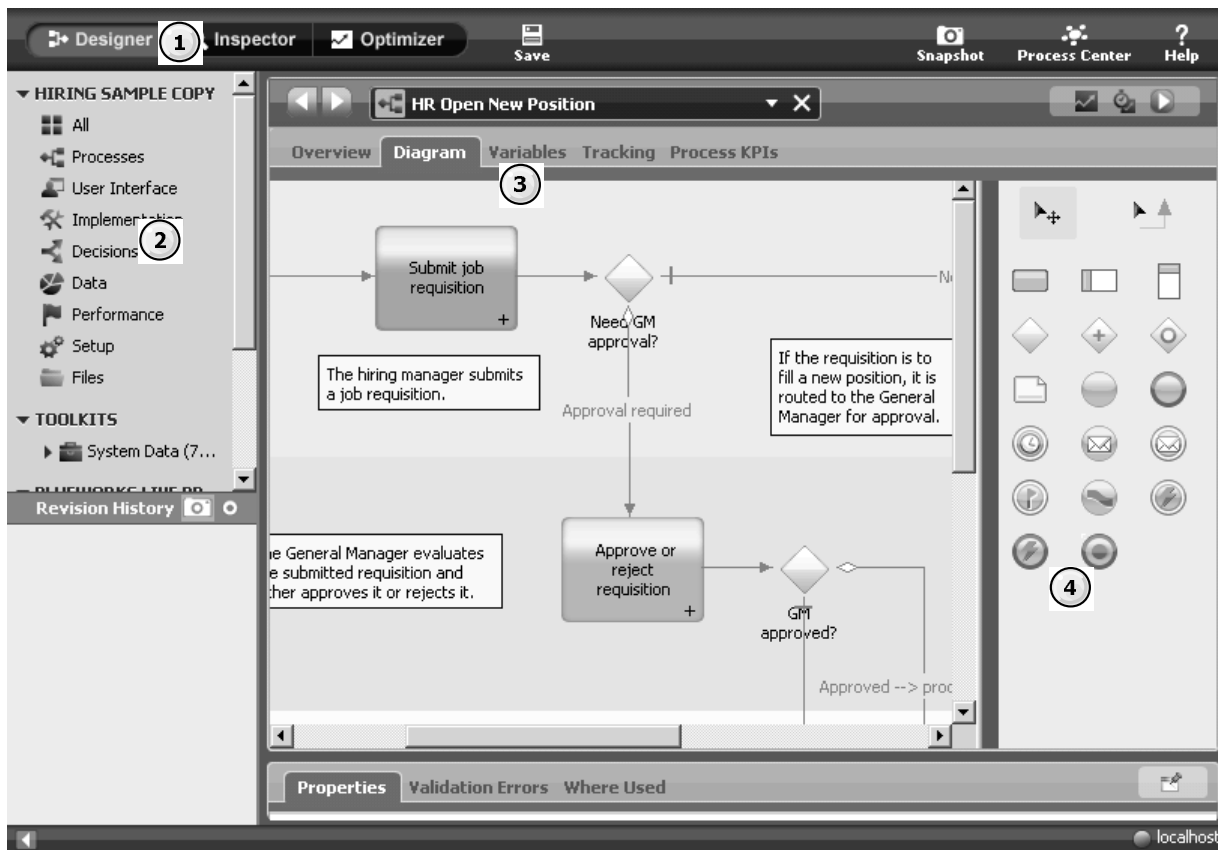


- ___ d. Click **Processes**, then double-click **HR Open New Position** to open the business process application in the editor.



Part 3: Explore a business process in IBM Process Designer

The business process application opens in IBM Process Designer. (You are encouraged to open each of these components and explore as you read)



- 1) **Designer, Inspector, Optimizer** — these represent three different views available in IBM Process Designer. The default, Designer view, is used for building business process diagrams using tools commonly found in Business Process Modeling Notation (BPMN). You may test the execution of your business process by launching it in the Inspector. The inspector is a sample environment which may be used for debugging, tracing variables, and following the flow of your business process. To maximize the performance of your business process, you may set scenarios, analyze the scenarios against one another, measure wait times, and examine key performance indicators (KPIs).
- 2) **Design palette** — the design palette offers a number of tools used in designing a business process application. Developers discover business processes, user interface designs, implementation tools, data object editors and many other useful tools.
- 3) **Editor pane** — when you open a resource from the business process diagram or from the design palette, it is displayed in the editor pane.
- 4) **Tools** — the tools which are included here represent the common tools which may be used for each editor. In the preceding example, the tools are common for the business process, which is open in the

editor. Different tools would be provided for different implementations, such as human tasks, business rules, and coaches.

- ___ 2. Examine the flow of the business process which is open in the design view.
 - ___ a. Maximize the window for readability. Once the window is maximized, maximize the editor pane by double-clicking the **Diagram** tab in the editor.

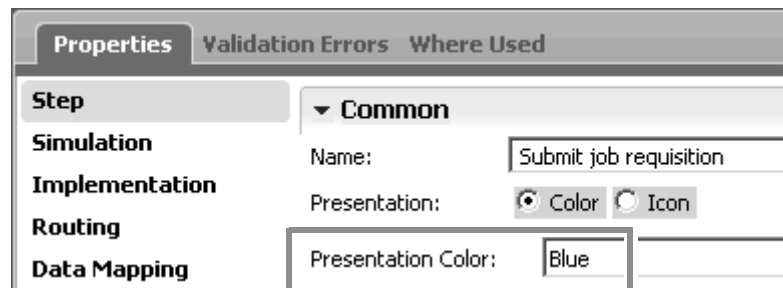


- ___ b. Examine the process from the upper left, to the lower right of the editor. Read the notes which have been added along the paths. Notes are useful to follow the logic of a business process, even though they do not add any functionality to the design. Notes are to process designs as comments are to Java code.
- ___ c. The business process is divided into horizontal swimlanes. Each swimlane represents a different actor upon the business process. Examine the labels for each swimlane along the left column. Name the actors for this process.



Note

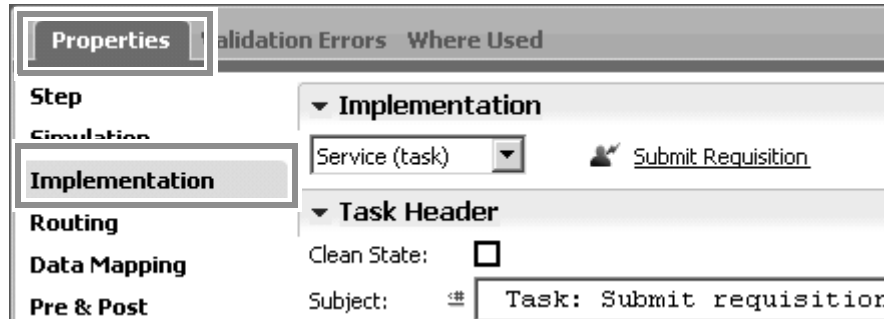
Swimlanes and activities are depicted with colors. These colors are arbitrary and only meaningful to the project and developer. Colored swimlanes and activities have no special function in IBM Process Designer. The color of a swimlane or activity may be changed depending upon your project. By default, new swimlanes are colorless and new activities are gray. To change the color of a swimlane or activity, select the item and set the **Presentation Color** in the **Properties** tab. You may have to restore the editor pane in order to see the **Properties** tab.



- ___ d. Along the paths of the business process are activities, such as **Submit job requisition**. Each activity represents a task assigned to the actor owning the swimlane. In this example, it is the responsibility of the **Hiring Manager** to complete the **Submit job requisition** activity.
- ___ e. Decision gateways divide the business process into different possible paths. For example, once the **Submit job requisition** activity is complete, a decision must

be made: does the requisition require GM approval? If approval is required, one path is selected, if not, another path.

- ___ 3. Examine the implementations of the business process activities.
 - ___ a. If you have maximized the editor pane, restore it by double-clicking the **Diagram** tab again.
 - ___ b. Select the **Submit job requisition** activity in the flow.
 - ___ c. At the bottom of the window, examine the **Properties** tab. Select the **Implementation** option in the **Properties** tab.



- ___ d. The implementation of this activity is a service called **Submit Requisition**. As indicated, this service is a hyperlink. Click the **Submit Requisition** link to see the implementation of the **Submit Requisition** service.



Hint

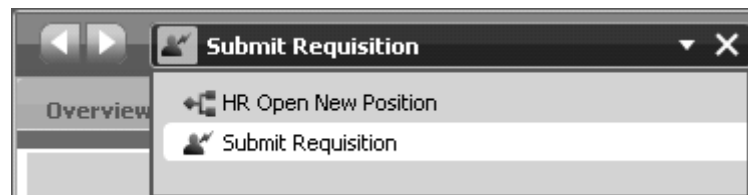
Instead of opening the implementation from the properties tab, as you have done, you can also view the implementation by double-clicking the activity in the design editor.

- ___ e. The **Submit Requisition** service is a subflow within the **Hiring Sample Copy** flow itself. This type of service implementation is a *human service*: a task which depends upon the input of an actor (in this case, the hiring manager) for its successful completion. The overt human tasks have been colored and display an icon which suggests where human input is required.
- ___ f. The subflow indicates that once the output is initialized, the next activity is to create the job requisition. From here, a **Next** button flows into a decision point: if the position type is **new**, the user must provide position details. If this position is existing, the user must provide details for that existing position, then confirm the position details. The subflow ends when the **Submit** button is pressed. Control is returned to the main flow from here.
- ___ g. From the design pane of the **Submit Requisition** service, select the **Coaches** tab. In this example, each human task in the service relates to a *coach*. A coach

is a client GUI which takes input from the actor (that is, the hiring manager) for the successful completion of the task.



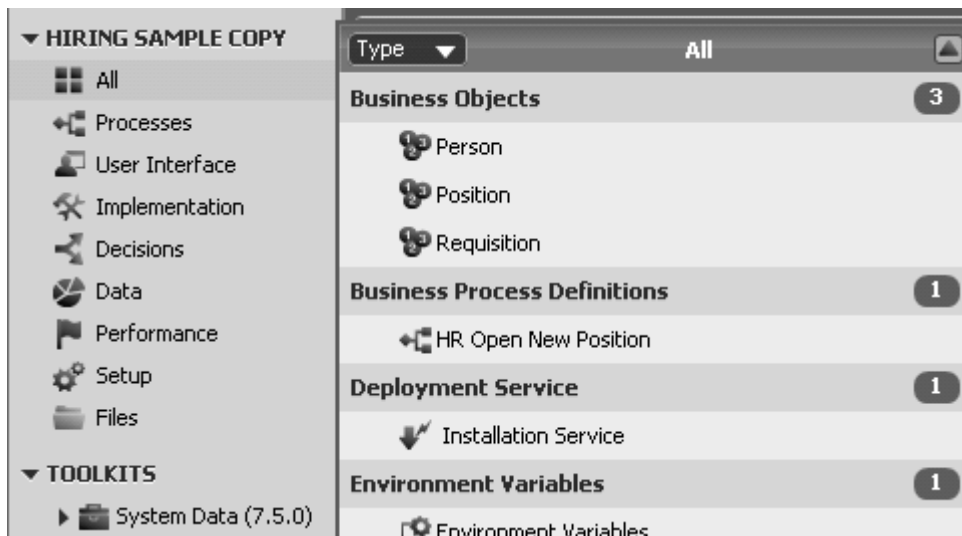
- ___ h. At the top of the editor pane is a drop-down field containing a breadcrumb trail of the business process artifacts which you currently have open. Select the drop-down to discover which artifacts are currently active.



Hint

The type of artifact is depicted by an appropriate icon to the left of the name of the artifact. If an artifact has been changed, but not saved, it is indicated with an asterisk. To switch to a specific artifact, select it from this drop-down list. To close the artifact which is currently open in the editor, select the X in the drop-down field.

- ___ i. Close the **Submit Requisition** service. Click the X in the upper left drop-down of the editor pane. You are returned to the business process.
- ___ 4. Examine all the artifacts of the business process.
- ___ a. In the left pane of the design window, under the **HIRING SAMPLE COPY** header, click **All**. All the artifacts used to create this process application are displayed.



- ___ b. The artifacts of the process application have been subdivided into categories. For example, there are **Person**, **Position**, and **Requisition** items classified as **Business Objects**. Take a moment to explore all the components which make up the **Hiring Sample Copy** process application.



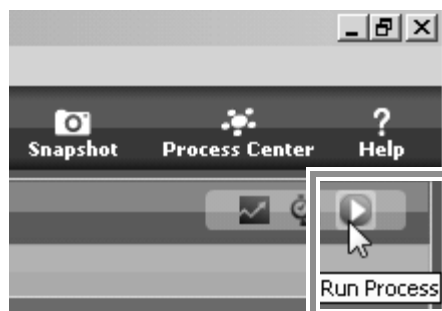
Note

If you hover your mouse over the tools in the left pane, a plus sign appears to the right of each tool. To add an item to the business process, select this plus sign. To view the current contents of the process application without adding an element, select the element name.

Part 4: Use the Playback feature to examine a running business process in IBM Process Designer inspector

In this part of the exercise, you run the process application in the IBM Process Designer inspector in order to trace the process from end to end.

- ___ 1. In the upper right corner of the design window, click the **Run Process** button.



- ___ 2. You may be prompted to switch the view. When you run a process application in IBM Process Center in this way, it is customary to explore the running process in the inspector view. Select the **Remember decision** check box and click **Yes**.

After a few moments, the business process diagram will be launched in the container of the running IBM Process Center profile and opened in the inspector view.

- ___ 3. The business process application stops at the first activity: **Submit job requisition**. There are several ways to determine where the application stopped: first, in the execution state trace on the right side, the process has stopped at **Submit job requisition**.



Another way to determine the location of the execution is to examine the diagram itself. The **Submit job requisition** activity has been marked with a red flag.



- ___ 4. Complete the **Submit requisition** activity.
- ___ a. In the upper right pane, select the **Task: Submit requisition** activity.
- ___ b. In the upper right, click the **Runs the selected task** icon.



Part 5: Use a coach to work with a running business process

The **Submit requisition** task is a series of GUI coaches which are intended to prompt the user for input in order to proceed to the next step. When you click the **Runs the selected task** icon, a browser window opens and launches the appropriate coach.

- ___ 1. In the **Create Job Requisition** coach, set the following values:

- **Employment status:** Full time

- **Location:** Boston
- **Position type:** New
- **Department:** Customer Service

2. Click the **Next** button.
3. Remember from exploration of the subflow that since this position is new, once the job requisition is created, you must confirm the position details and submit them to end this subflow. A confirmation page appears. Click **Submit**.

The subflow ends and returns control to the main flow. The browser window indicates that the Submit requisition service has ended. Close the **Activity has finished** window.

4. In the inspector view in IBM Process Designer, select the **Refresh** icon from the upper right of the inspector view to refresh the state of your process.



The status of the submit requisition task is now closed, and the execution trace has moved to the next activity in the flow: **Approve or reject requisition**.

Status	Owner	Subject	Priority
Closed	admin	Task: Submit requisition	Normal
Received	(ROLE) G...	Step: Approve or reject requisition	Normal

5. Select the **Approve or reject requisition step** from the upper right pane, and click **Run the selected task**. If you are prompted to select a user, select the `admin` user and click OK.
6. The task launches in a browser window, but this time, the coach provides you with the option of either approving or rejecting the requisition. Select **Approved** and click **OK**. The activity finishes. Close the **Activity has finished** window.
7. Return to IBM Process Designer and use the refresh icon to update the execution trace. Because the requisition was approved, the flow was moved to **Find job candidates** activity, and the process ended. Because **Find job candidates** contains no implementation, it is not highlighted in the execution trace.

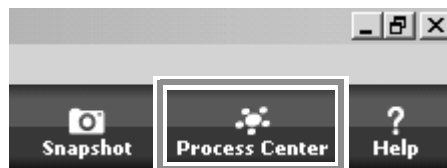


Questions

Can you determine what the **Find job candidates** activity accomplished and why the process ended?

If the student examines the implementation of the activity, the student discovers that there is no implementation for this activity. Because there is no implementation, nothing was executed at this state. This activity serves as a simple pass-through to the final state.

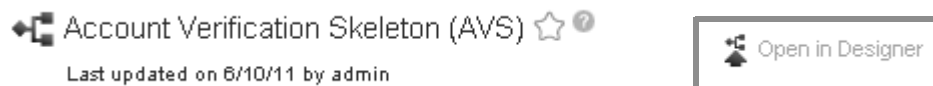
- ___ 8. You may run the process again and select different options to examine the different execution states of the business process. Try and test the following examples:
- What happens in the **Submit job requisition** activity if this position exists?
If the requisition is to fill an existing position, it is routed directly to Human Resources.
 - Do you need approval from the general manager for an existing position?
No, existing positions skip the approval process.
 - What happens if the general manager rejects the requisition?
If the general manager rejects the requisition, the hiring manager is notified of the rejection through the **Notify hiring manager** activity, and the requisition is terminated.
- ___ 9. When you have completed exploring the **Hiring Sample Copy** process application, select the Process Center link from the upper right corner to return to the repository explorer.



Part 6: Wire activities together in a business process

In this part of the exercise, you examine a partially completed process application and wire activities together to form a completed business process. Because this business process application is a skeleton, it does not contain completed implementation activities.

- ___ 1. From the Process Center perspective, click the **Open in Designer** link associated with the **Account Verification Skeleton (AVS)** process application.



- ___ 2. Click **Processes** then double-click **AccountVerification** to open the process application in the editor.
- ___ 3. A business process opens in design view. You can see from the activities in the process that the process is incomplete. Several activities, such as **Determine Applicant Eligibility**, are not wired to the rest of the diagram



- ___ 4. Examine the implementation of **Determine Application Eligibility**.
- ___ a. Select the **Determine Application Eligibility** activity from the design editor.
- ___ b. At the bottom of the editor, make sure that the **Properties** tab is selected.
- ___ c. Select the **Implementation** option from the properties list.
- ___ d. The activity is implemented by a human task named **Manually Set Dummy Values**



Click the link to view the implementation of this activity.

- ___ e. The **Manually Set Dummy Values** service performs only one action: to launch a coach which allows the user to enter some dummy values. You may choose to examine that coach in the **Coaches** tab if you prefer.
- ___ f. When you have finished examining the **Manually Set Dummy Values** service, use the X in title bar to close it and return to the business process application.
- ___ 5. Follow the process narrative to correctly wire the activities in to the process.
- ___ a. A process narrative is an optional script which describes, in text form, how the process flows.

Process narrative for Account Verification

- Once the customer submits an application, the application must be tested for eligibility.
- If the application is ineligible, record the ineligible application in database and terminate the process
- If the application is eligible, the system calls an external service to perform a credit check.
- A credit risk assessment is performed against the customer's credit check.

- If the customer is determined to be low risk, the application is automatically approved. An output message is generated for the client and the process is complete.
- If the customer is determined to be medium risk, the customer must seek final approval from an authorized figure for the application
- If the customer is determined to be high risk, the customer must submit additional documentation, then the customer must seek final approval for the application
- If the application is approved, generate an output message for the customer. The process is complete.
- If the application is denied, record the declined application. The process is complete.

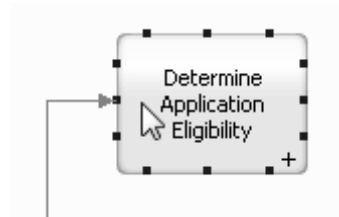
___ b. Select the wiring tool from the toolset at the right of the design view



___ c. With the wiring tool selected, hover your mouse next to the **Start** element. Connection points are visible as points along the **Start** element



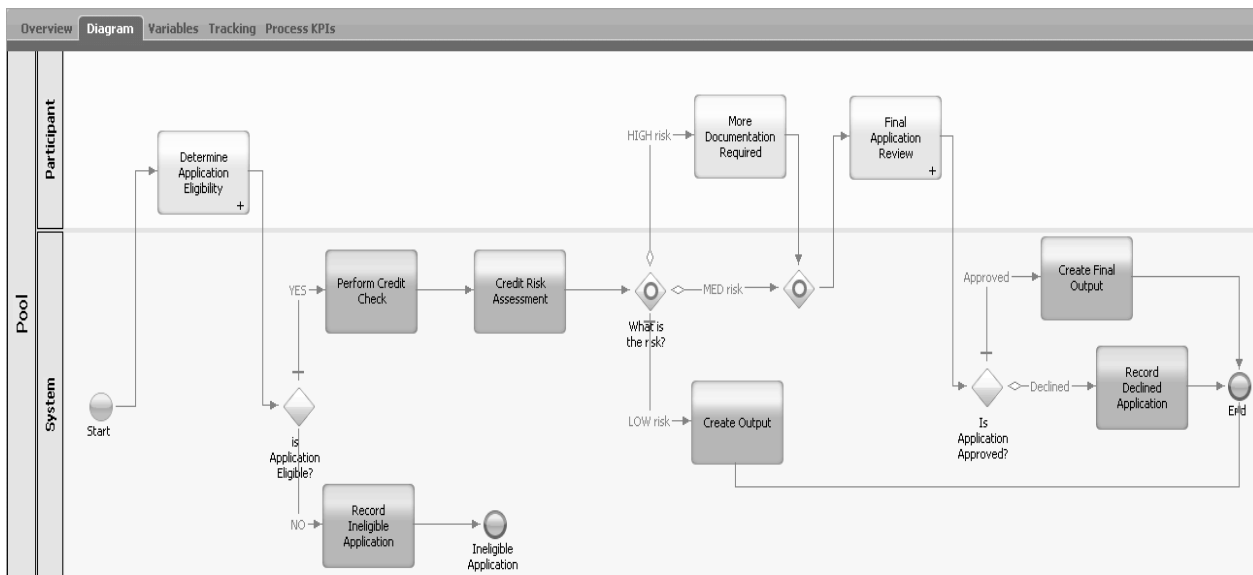
___ d. Click one of the connection points on the **Start** element and drag the cursor to attach the wire to a connection point on the **Determine Application Eligibility** activity.



- ___ e. Wire the remaining activities together as suggested by the process narrative. Consider wiring the following activities and decisions:

- **Determine Application Eligibility**
- **is Application Eligible?**
- **Final Application Review**
- **Credit Risk Assessment**
- **Create Output**
- **Create Final Output**
- **Record Declined Application**

- ___ 6. Compare your solution to the following diagram:



- ___ 7. Once you have completed wiring the activities and decisions into the process application, click the **Save** icon to save your diagram.



- ___ 8. Test your process application by running it in the inspector.
- ___ a. Click the **Run Process** icon. The inspector view opens.

- ___ b. The process application stops at **Determine Application Eligibility**. Remember that this activity has been implemented as a human task to gather dummy data. Select the **Determine Application Eligibility** state from the upper right and select **Run the selected task**.
- ___ c. If you are prompted to select a user, select **admin** and click **OK**.
- ___ d. The coach for collecting dummy data appears in a browser window. Set the following values to the coach:
- **Eligible Application:** **Enabled**
 - **Credit Risk:** **Low**
 - **Application Decision:** **Enabled**

Select **OK** when you have finished entering your values.

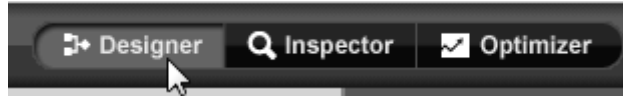
The service finishes. You may close the browser window.

- ___ e. Return to IBM Process Designer and the Inspector view. Select and refresh the instance.
- ___ f. The instance is complete.

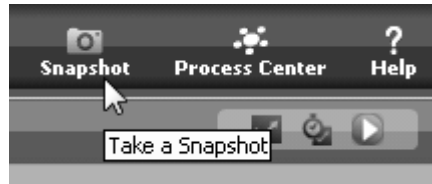
Process Instances Services in Debug				
Instance Name:		Status: All		
Instance Name	Snapshot	Process	Status	Instance Id
AccountVerification:69	Tip	AccountVerification	Completed	69

Remember that, other than the dummy values coach in the **Determine Application Eligibility** activity, there are no implementations for any of the other activities. The process application completes without any errors if it is wired together properly.

- ___ 9. Save your solution to a snapshot.
- ___ a. Click the **Designer** view from the upper left.



- ___ b. Click the **Snapshot** tool from the upper right.



- ___ c. Enter a meaningful name for your snapshot, such as **Skeleton Re-wired**.
- ___ d. Enter a description for the snapshot and click **OK**.

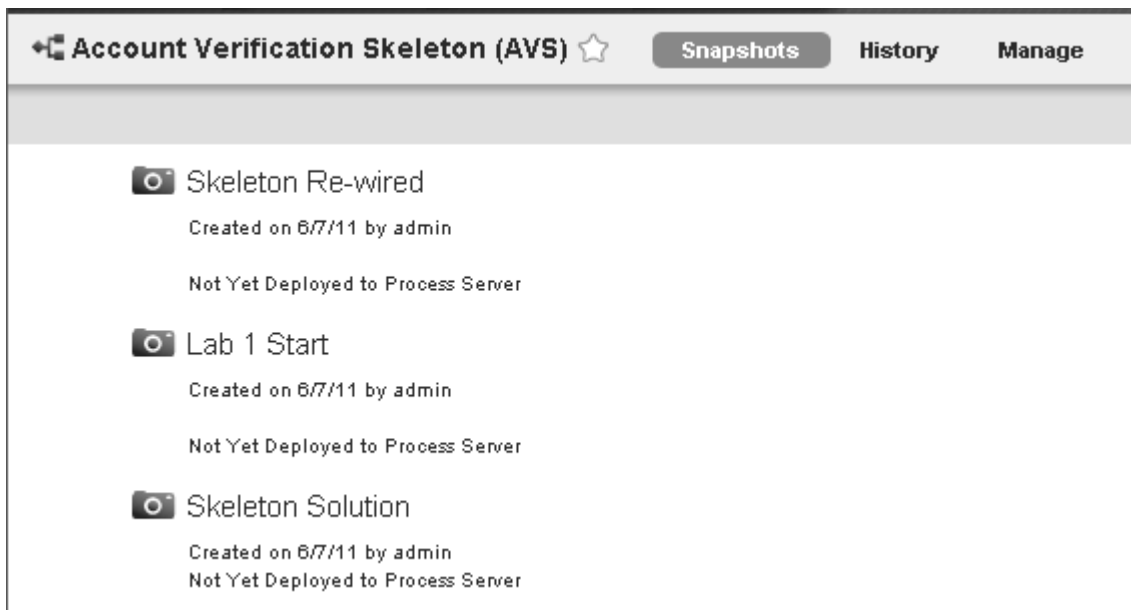


Information

A snapshot captures a precise moment in time for the process application. Snapshots can be managed from IBM Process Center or using the available Process Center tools in IBM Process Designer. Only snapshots can be deployed to the server.

- ___ 10. To work with the snapshots of the process application, return to the Process Center perspective and select the Account Verification Skeleton process application which just managed. A list of snapshots is displayed.

If you do not see the process applications in the repository view, select the **Process Apps** tab, right-click the workspace, and select **Refresh**.



Information

There are several actions which can be performed on snapshots. For instance, they may be edited, exported, copied (cloned), deployed to the server, activated, or archived (marked for deletion).

- ___ 11. When you are finished exploring the sample, close IBM Integration Designer. You use a different workspace in the next exercise

End of exercise

Exercise 3. Managing the IBM Process Center repository

Estimated time

01:15

What this exercise is about

IBM Process Center is a run time where IBM Process Designer and IBM Integration Designer share assets, in effect allowing the development of business processes cooperatively in a highly interactive manner. IBM Process Center includes a server and performance data warehouse, allowing users working in the authoring environments to run processes and store performance data for testing and playback purposes.

The IBM Process Center console provides a convenient location in which to create and maintain high-level containers such as process applications and toolkits. Administrators who do not actively work in the IBM Process Designer view can use the IBM Process Center console. The IBM Process Center console provides a framework in which BPM analysts and developers can build their processes and underlying implementations. Another primary task for administrators is managing access to the IBM Process Center repository by setting up the appropriate authorization for users and groups.

From the Process Center console, you can:

- Create process applications and toolkits and grant other users access to those process applications and toolkits.
- Create process models, services, and other assets within process applications.
- Install process applications that are ready for testing or production on the process servers in those environments.
- Manage running instances of process applications in configured environments.

What you should be able to do

After completing this exercise, you should be able to:

- Explore the IBM Process Center repository
- Create a BPM toolkit in IBM Process Center

- Associate IBM Integration Designer artifacts with the toolkit
- Generate access to process applications and toolkits

Introduction

In this exercise, you explore IBM Process Center using the IBM Process Center console. You import the Hiring Sample Copy process application into the existing IBM Integration Designer workspace. You create a toolkit within the Process Center and then bring the empty template into the Business Integration project. The existing Accounts Verification project is then imported into that existing workspace and after few activities you publish the project with all its contents to the Process Center.

You associate the toolkit with a new business application using the IBM Process Designer and you deploy the business application to the WTE Process Server. Finally, you undeploy the application.

Requirements

Completing the exercises for this course requires a VMware image lab environment that includes the exercise support files, IBM Integration Designer, and the IBM Process Server test environment.

Instructor exercise overview

This exercise introduces students to IBM Process Center. This exercise is new in BPM 7.5. This lab teaches students some of the key functionalities of the Process Center. Most of the activities are accomplished using the Process Center Console. It can get a little confusing with the console concept so let the students know that this console can be accessed in three ways. First, by launching IBM Process Designer. Second way is by switching perspectives within the IBM Integration Designer since it is available as a new perspective. The final way to access the console is by launching it directly from Program Files menu.

Keep in mind the memory constraints of the VMware since students are running two profiles of WebSphere Application Server in this lab. Care has been taken as to minimize the duration during which both the servers are running at the same time. However, there is adverse impact on the performance. It is important to set the expectations at the very beginning of this lab. Make students aware of the memory limitations of VMware and additional constraints of two profiles running concurrently. The server startup time is slow and could be as long as 15 - 20 minutes in some cases. Students need to be told that this exercise is interesting, and that IBM Process Center is a new component which they may find useful. The performance degradation is something that cannot be controlled.

Also, let the students know that in a production environment, when they are developing or testing, Process Center and Integration Designer do not run at the same time on the same PC. Process Center is best suitable in a distributed environment where it is connected to multiple environments with multiple IBM Process Servers running on separate physical hardware

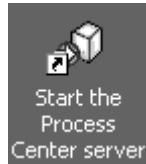
Exercise instructions

Part 1: Explore IBM Process Center repository

One way of accessing the IBM Process Center Console is through a perspective within the IBM Integration Designer.

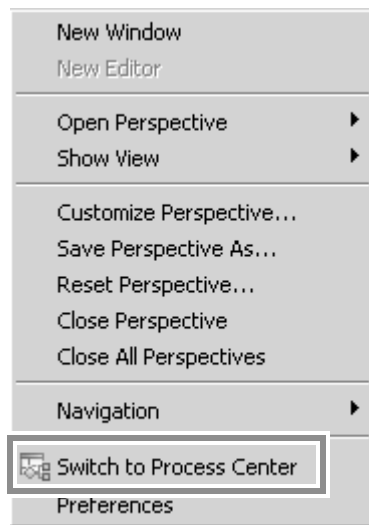
Start the IBM Process Center server if it not already running. To start the IBM Process Center server:

- ___ 1. On your Windows desktop in the VMware image, select the shortcut titled: **Start the Process Center server**. Double-click or press Enter to launch the shortcut.

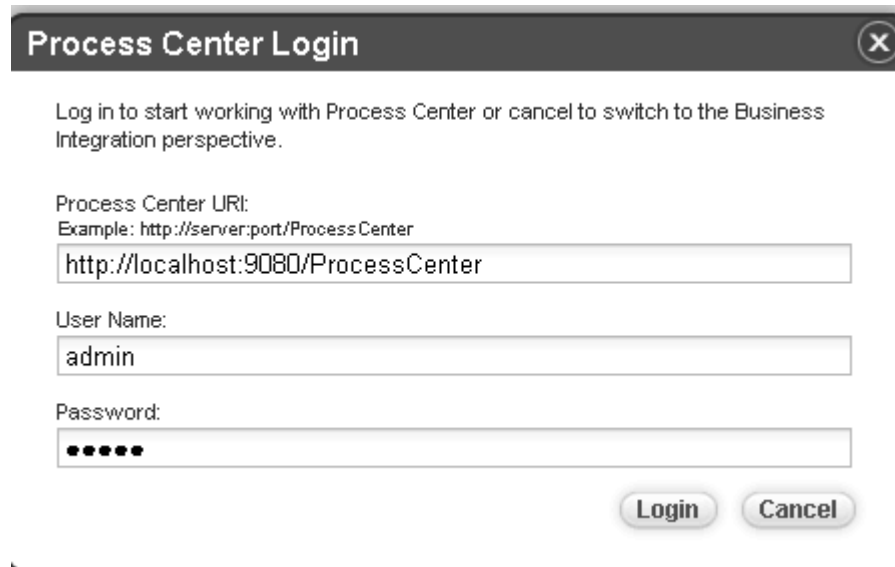


Once you do, a DOS command window appear, and the IBM Process Center server instance start. IBM Process Center is an application running in its own profile of WebSphere Application Server. That profile is connected to a DB2 repository where IBM Process Center stores its BPD artifacts.

- ___ 2. It takes several minutes for IBM Process Center to start. Once it has started, the DOS command window disappear without notice or warning.
- ___ 3. Open the Exercise 3 workspace.
 - ___ a. On the desktop, open the folder labeled **Exercise Shortcuts**.
 - ___ b. Double-click the shortcut labeled **Exercise 3**.
 - ___ c. Close the **Getting Started** tab.
- ___ 4. Switch to the Process Center perspective by clicking **Window > Switch to Process Center** in the menu options.



- ___ 5. In the Process Center Login window, enter the following credentials:
- Process Center URI:** `http://localhost:9080/ProcessCenter`
- User Name:** `admin`
- Password:** `admin`



The screenshot shows a dialog box titled "Process Center Login" with a close button (X) in the top right corner. The dialog contains the following text and input fields:

Log in to start working with Process Center or cancel to switch to the Business Integration perspective.

Process Center URI:
Example: `http://server:port/ProcessCenter`

User Name:

Password:

At the bottom right, there are two buttons: "Login" and "Cancel".

- ___ 6. Click **Login**. It takes a minute to two for Process Center to log in. You do not need to click the **Login** button twice.

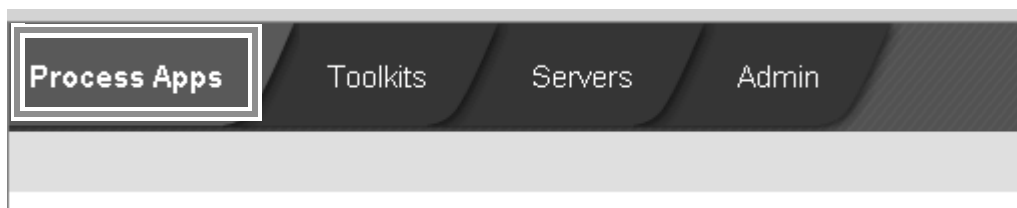
- ___ 7. Close the **Getting Started with IBM Process Center 7.5** welcome screen, by clicking **X** at the upper right of the window.



Part 2: Import existing process application from repository into IBM Integration Designer

In this portion of the exercise, you learn to import existing process application from the IBM Process Center repository into the IBM Integration Designer workspace.

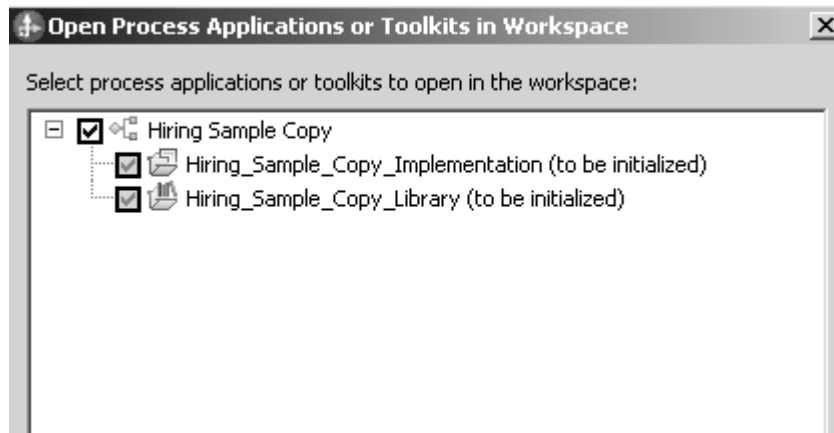
- ___ 1. In the Process Center perspective, click the **Process Apps** tab.



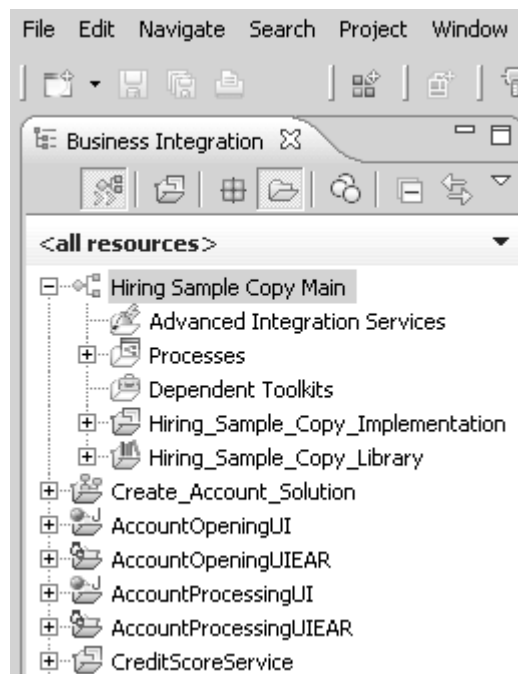
- ___ 2. Click **Open in workspace** next to the **Hiring Sample Copy (HSS2)** process application.



- ___ 3. Accept the defaults in the **Open Process Applications or Toolkits in Workspace** window and click **OK**.

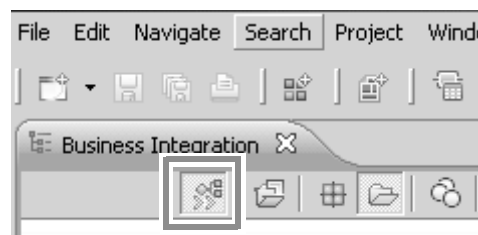


- ___ 4. The Business Integration perspective opens with the **Hiring Sample Copy** project.



Hint

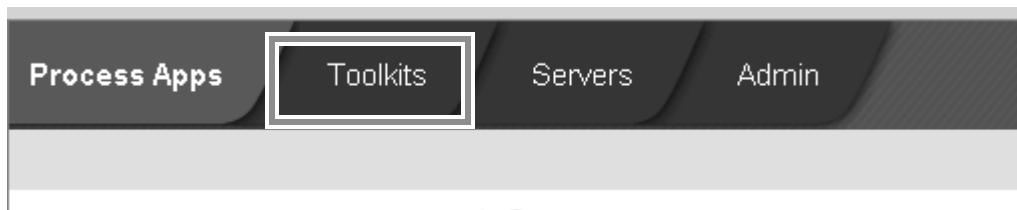
If you do not see the implementation and library projects, switch your view to **Detailed** mode.



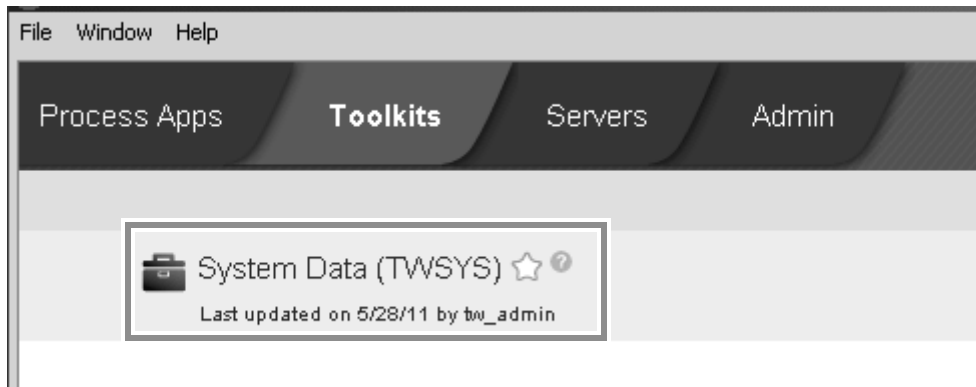
Part 3: Create a BPM Toolkit in IBM Process Center

You can create toolkits to enable IBM Process Designer users to share library items across process applications. The Process Center perspective is the way to establish and maintain relationships between BPM Toolkits, process applications, and SCA services. You can create a process application or toolkit, and associate SCA services with a process application or toolkit. You may also import process application and toolkit artifacts into IBM Integration Designer, and publish process applications and toolkits to the Process Center.

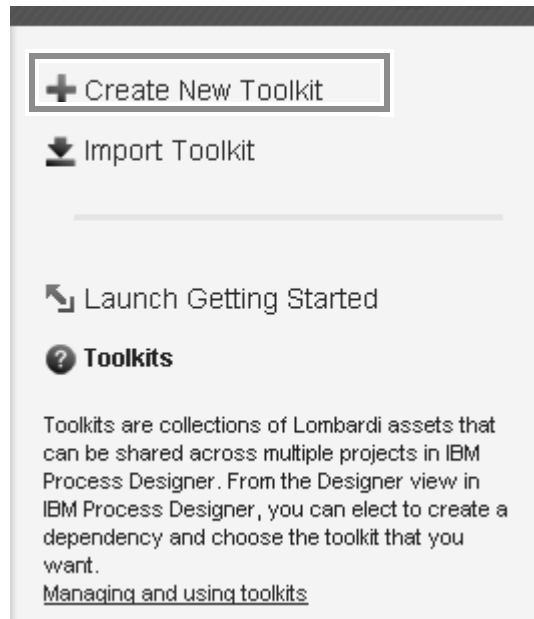
- ___ 1. Return to the Process Center perspective. Click **Window > Switch to Process Center**.
- ___ 2. In the Process Center perspective, click the **Toolkits** tab.



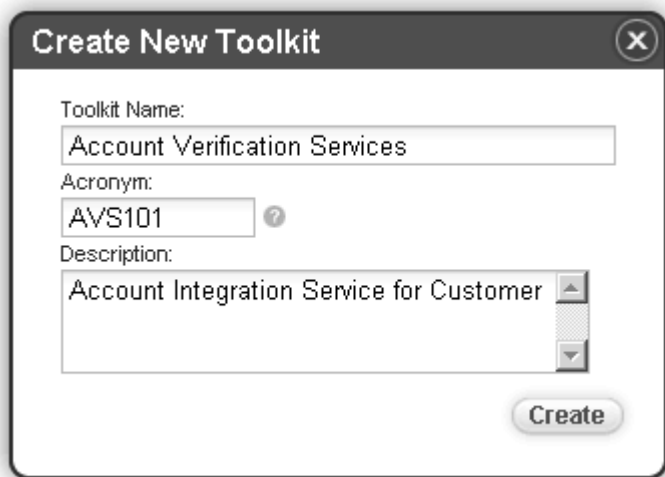
- ___ 3. Verify that there is one toolkit named **System Data** listed under the Toolkits tab. It is the default toolkit that is created during the BPM installation and is imported into the Process Center repository. Each process application and toolkit that you create automatically includes a System Data toolkit dependency. In this toolkit, you have access to the assets that all IBM Business Process Manager projects require, such as standard variable types, standard charts for reports, and so on.



- ___ 4. In the upper right corner of the Process Center perspective, click **Create New Toolkit**.



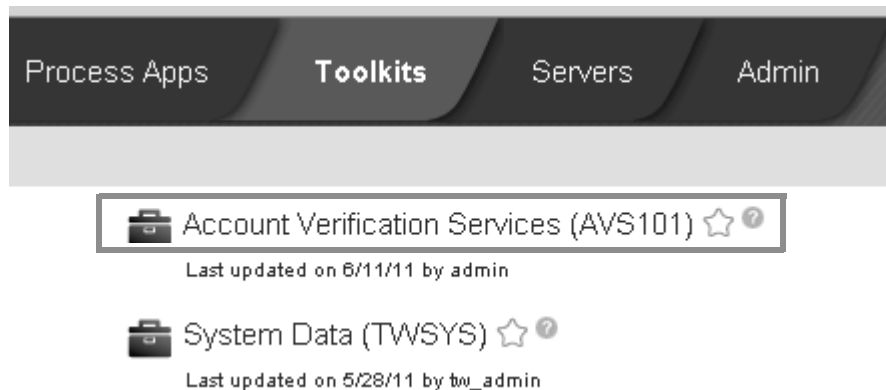
- ___ 5. In the **Create New Toolkit** window, enter the following information:
- Enter **Account Verification Services** in the **Toolkit Name** field.
 - Enter **AVS101** in the **Acronym** field.
 - Enter **Account Integration Service for Customer** in the **Description** field.



Hint

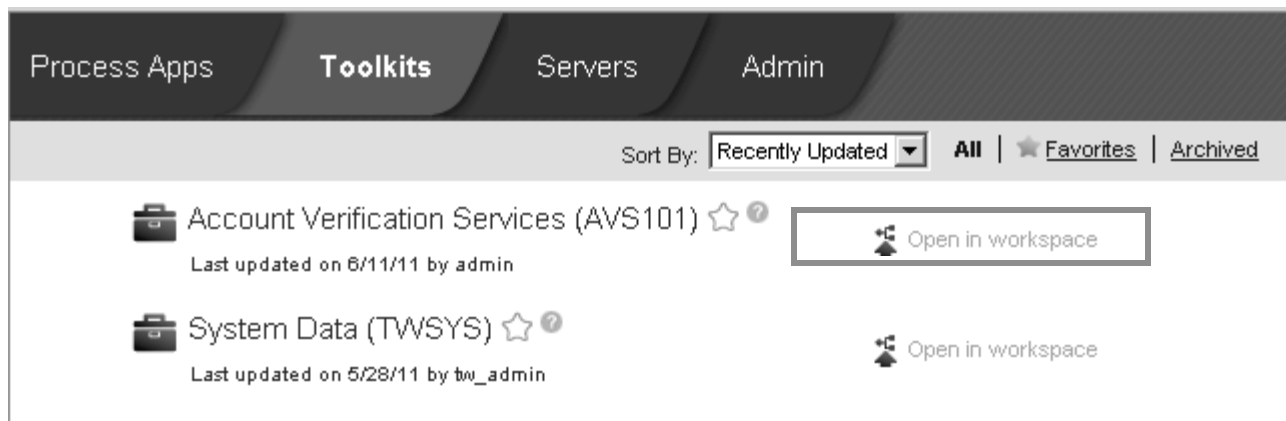
The acronym must be unique in the repository. You may need to change this value in case this acronym is in use in the repository.

- ___ 6. Click **Create** to create the toolkit. It takes a minute or two for the new toolkit to be created. You do not need to click the **Create** button twice.
- ___ 7. Verify that the newly created toolkit is listed in the **Toolkits** tab.

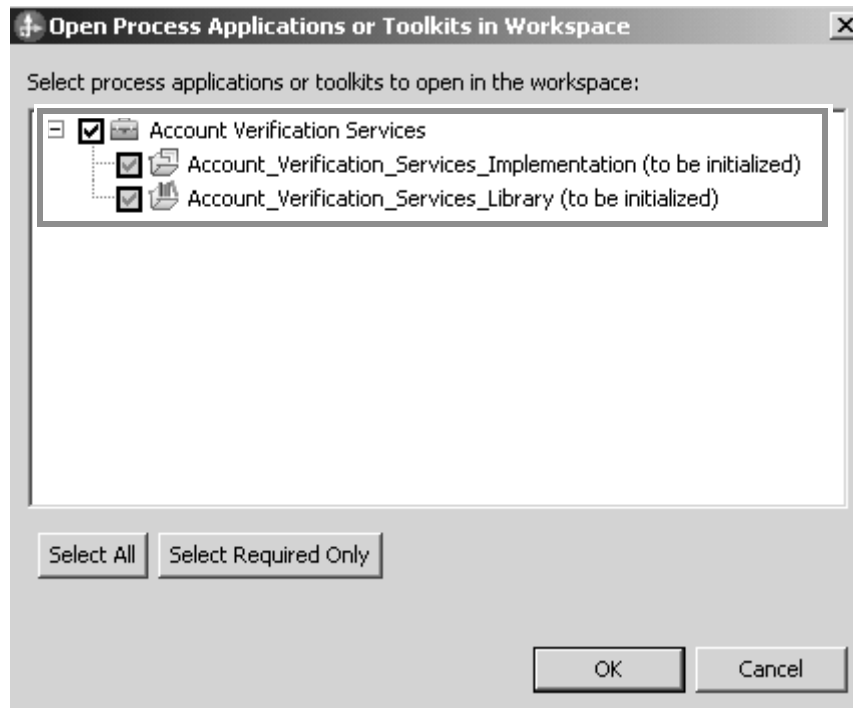


Part 4: Associate IBM Integration Designer artifacts with the toolkit

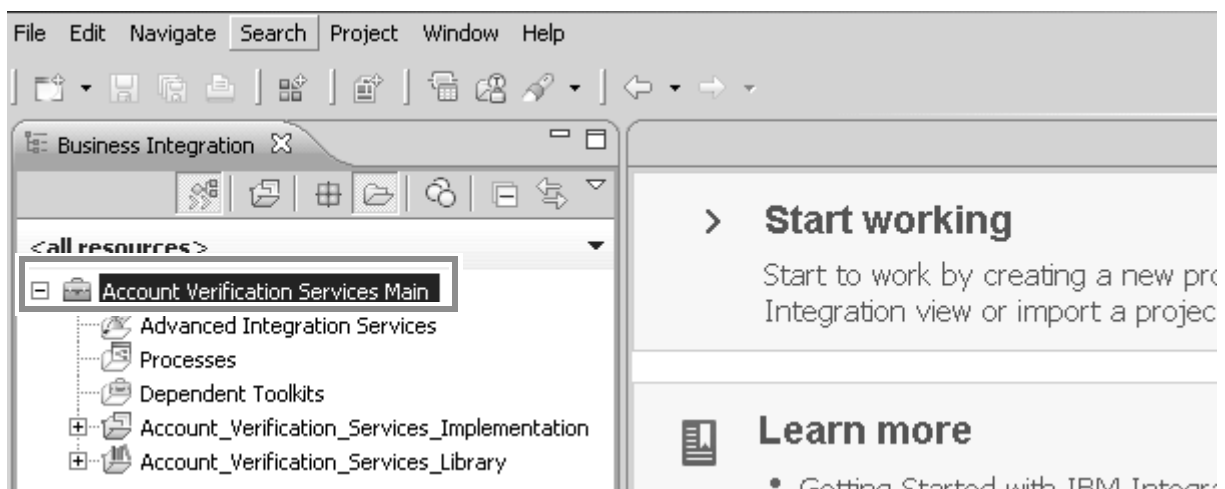
- ___ 1. In the **Toolkits** tab, click **Open in workspace** next to the **Account Verification Services** toolkit.



- ___ 2. Accept the defaults in the **Open Process Applications or Toolkits in Workspace** window and click **OK**.



- ___ 3. The Business Integration perspective opens with the **Account Verification Services** project.



**Hint**

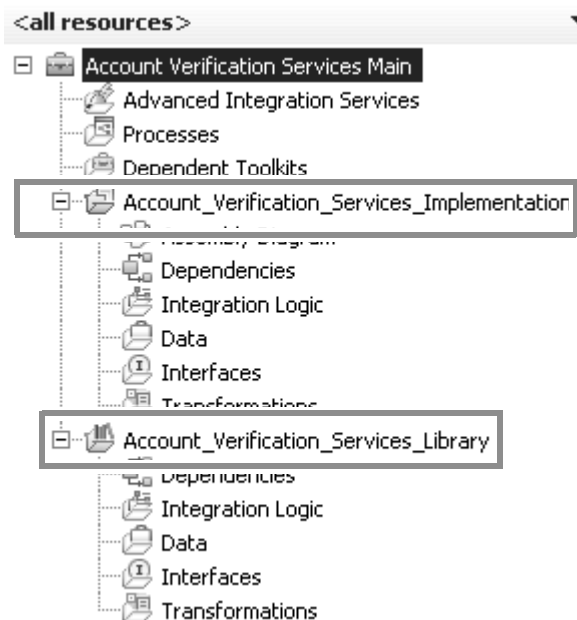
If you do not see the implementation and library projects, switch your view to **Detailed** mode.



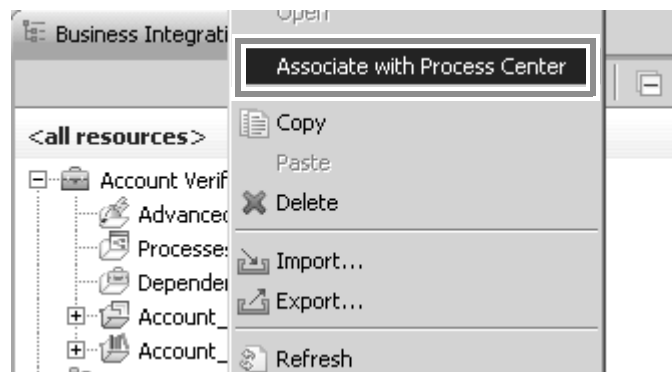
- ___ 4. Select **Account Verification Services Main** and click the **Properties** tab. Examine the values.

Task Flows Build Activities Properties Problems Server Logs	
Property	Value
Toolkit Name	Account Verification Services
Acronym	AVS101
Track	Main
Track Acronym	Main
Process Center URL	http://localhost:9080/ProcessCenter
Connection State	Connected

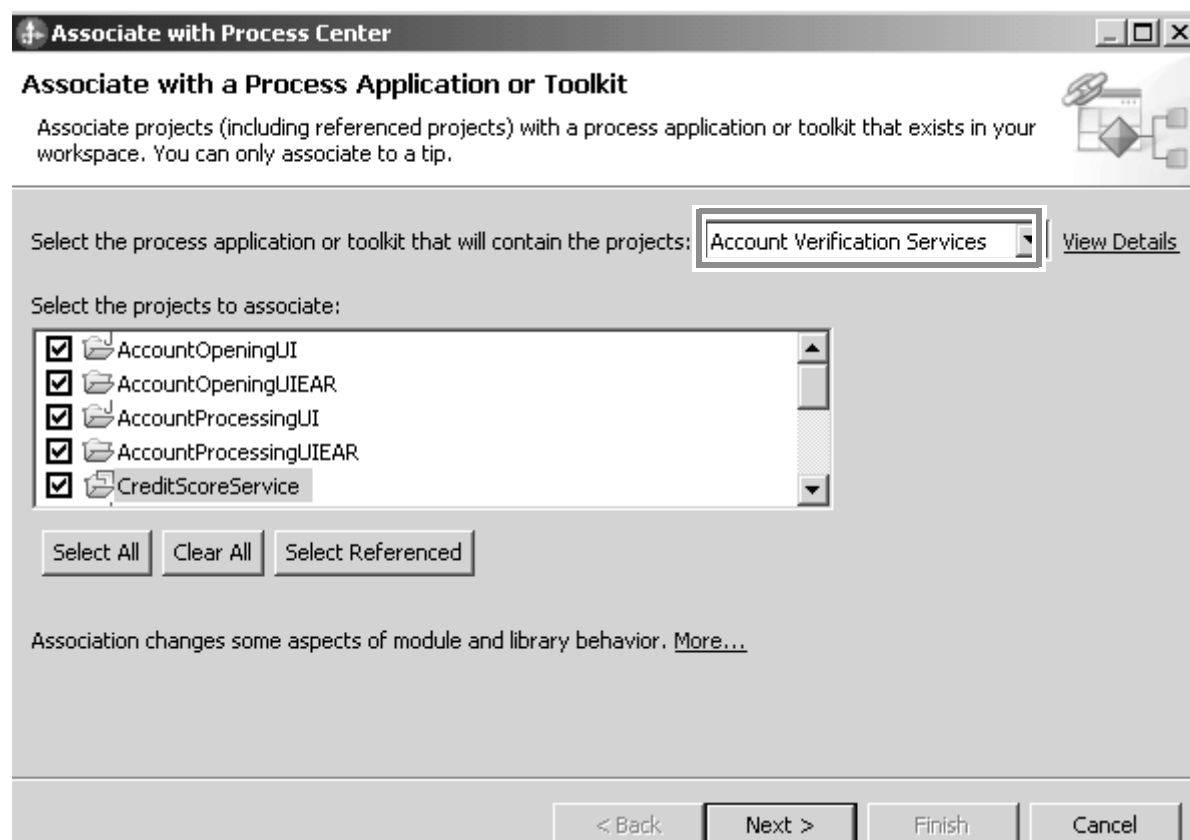
- ___ 5. Expand **Account_Verification_Services_Implementation** and **Account_Verification_Services_Library**.



- ___ 6. Associate the imported project with the **Account Verification Services** toolkit you created earlier.
- ___ a. Right-click **Account Verification Service Main** and select **Associate with Process Center**.

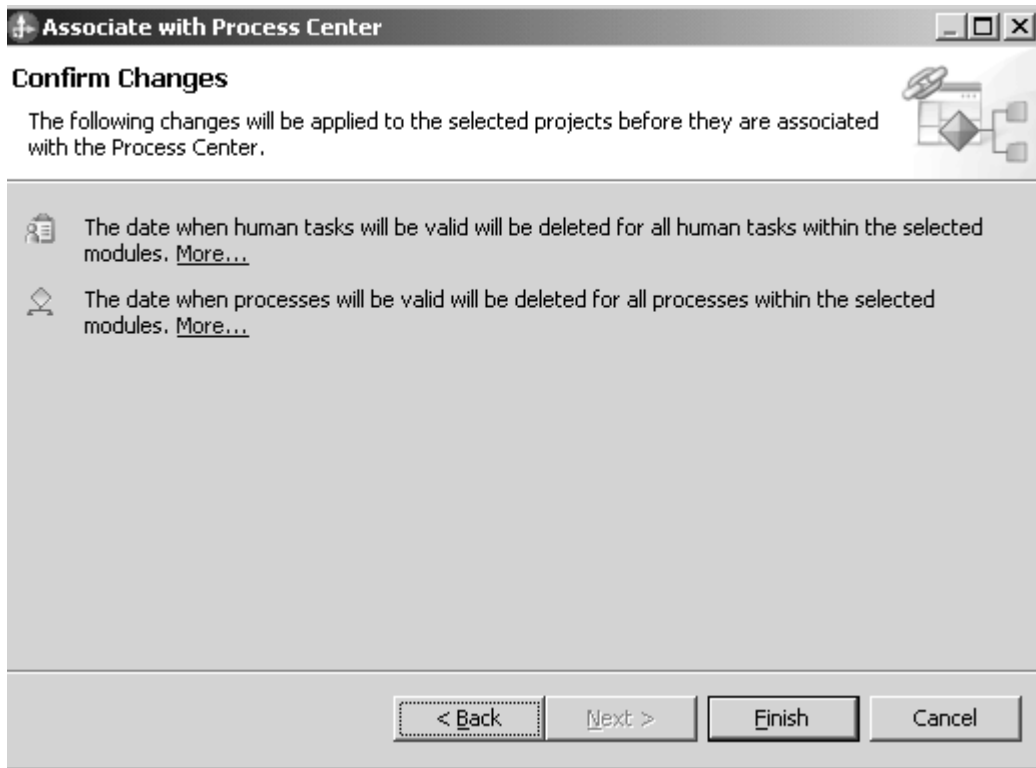


- ___ b. Use **Select All** to select the existing AccountVerification artifacts.
- ___ c. In the **Associate with Process Center** window, verify that **Account Verification Services** is selected as the toolkit and click **Select All**.

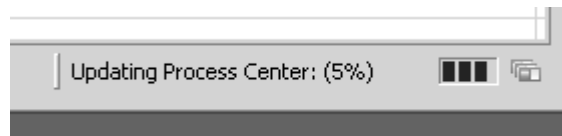


- ___ d. Click **Next**.

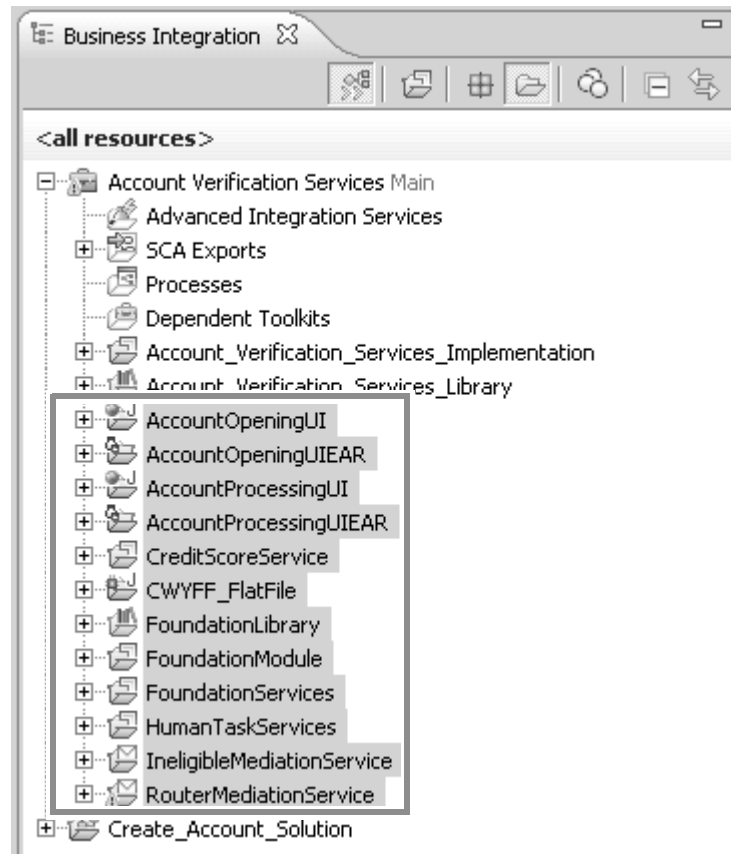
- ___ e. Click **Finish** in the **Confirm changes** panel to complete the association.



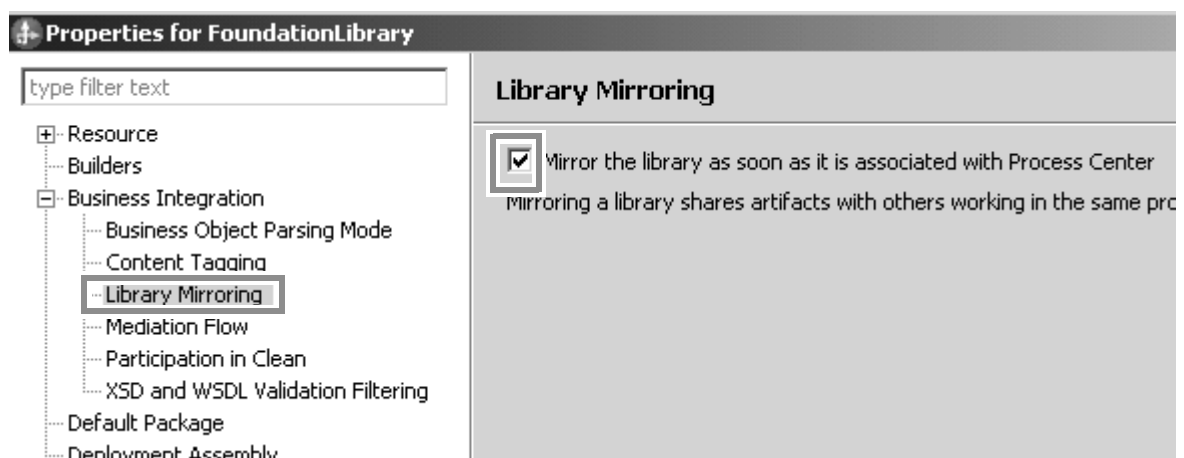
- ___ 7. It takes a few minutes for the association with the Process Center to take place. Watch the status at the lower right. Wait until the status reaches 100 percent which indicates that the update is complete.



- ___ 8. Examine the **Account Verification Services** project on the left. All the modules have been moved into it.



- ___ 9. Right-click **FoundationLibrary** and select **Properties**.
- ___ 10. In the **Properties for FoundationLibrary** panel, expand **Business Integration** and select **Library Mirroring**.
- ___ 11. Select **Mirror the library as soon as it is associated with Process Center** and click **OK**.



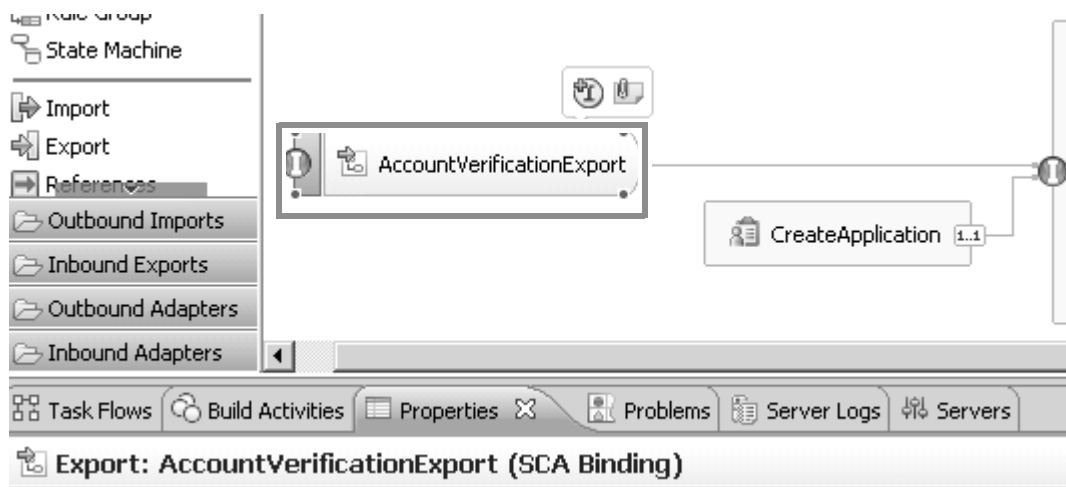


Information

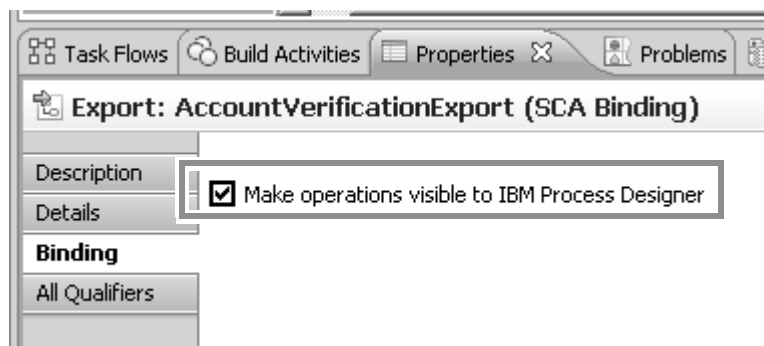
In a collaborative development environment between IBM Integration Designer and IBM Process Designer, artifacts like business objects are shared in libraries. Library mirroring means that when you put an artifact in your library in Integration Designer it is made available to others working with the same library. In Process Designer, developers who are using the same process application or toolkit have access to the mirrored library.

___ 12. Make the operations available in the Process Designer by setting the attributes in the IBM Integration Designer.

- ___ a. Expand **FoundationModule** and double-click **Assembly Diagram**.
- ___ b. In the assembly diagram, select **AccountVerificationExport** and click the **Properties** tab.



- ___ c. In the **Binding** tab, select **Make operations visible to IBM Process Designer**.

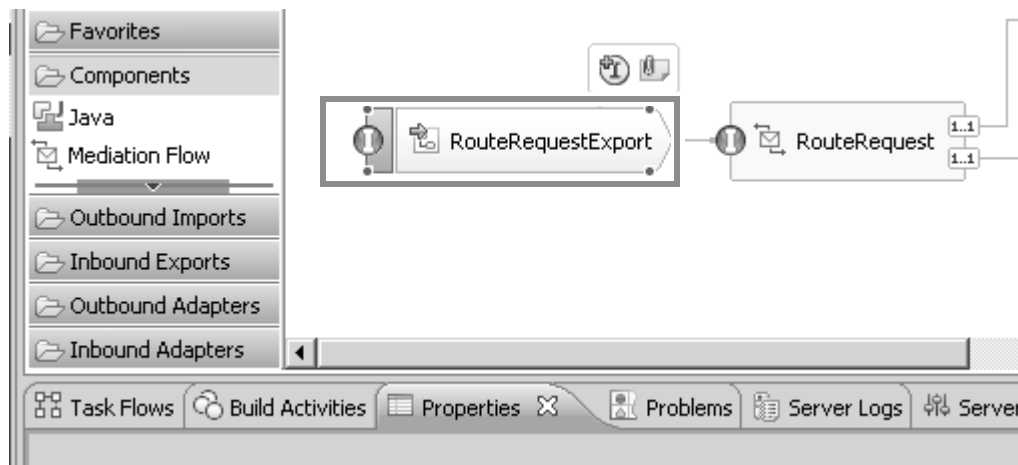


- ___ d. Click **File > Save All** to save your changes.

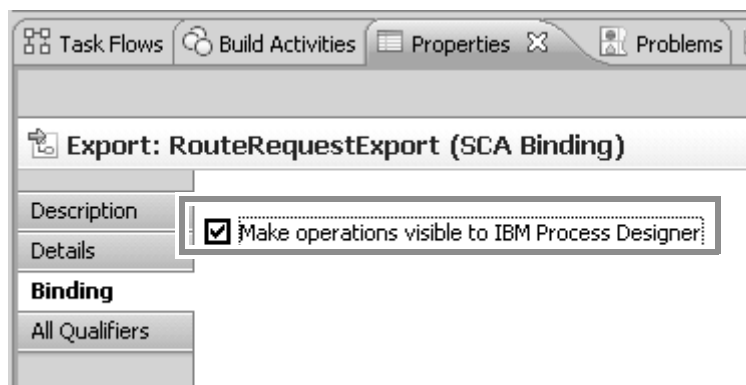
- ___ e. Notice the new icon for the export.



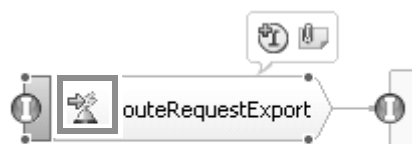
- ___ f. Expand **RouterMediationService** and double-click **Assembly Diagram**.
- ___ g. In the assembly diagram, select **RouteRequestExport** and click the **Properties** tab.



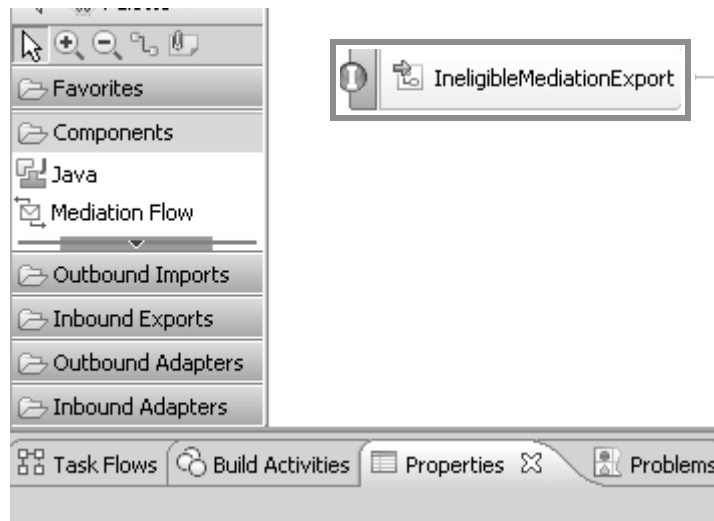
- ___ h. In the **Binding** tab, select **Make operations visible to IBM Process Designer**.



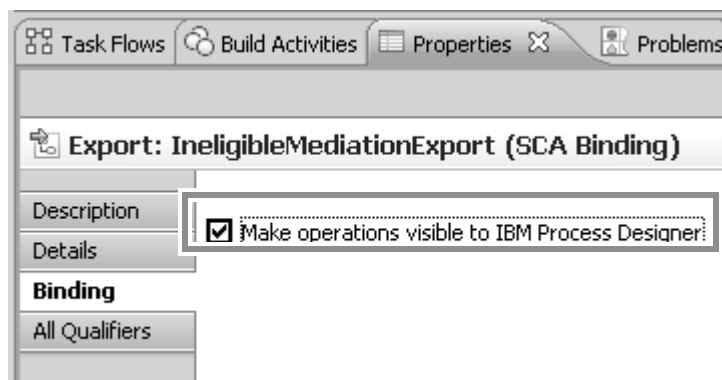
- ___ i. Click **File > Save All** to save your changes.
- ___ j. Notice the new icon for the export.



- ___ k. Expand **IneligibleMediationService** and double-click **Assembly Diagram**.
- ___ l. In the assembly diagram, select **IneligibleMediationExport** and click the **Properties** tab.



- ___ m. In the **Binding** tab, select **Make operations visible to IBM Process Designer**.

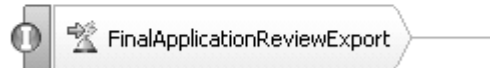
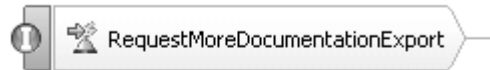


- ___ n. Click **File > Save All** to save your changes.
- ___ o. Notice the new icon for the export.

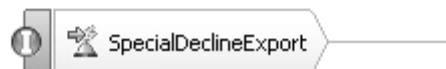
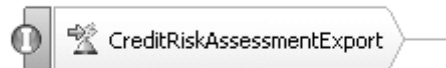


- ___ p. Expand **HumanTaskServices** and double-click **Assembly Diagram**.
- ___ q. Select the **Make operations visible to IBM Process Designer** for two export components in the assembly diagram, namely **RequestMoreDocumentationExport** and **FinalApplicationReviewExport**. The properties are in the **Binding** tab in the **Properties** view for the respective components.

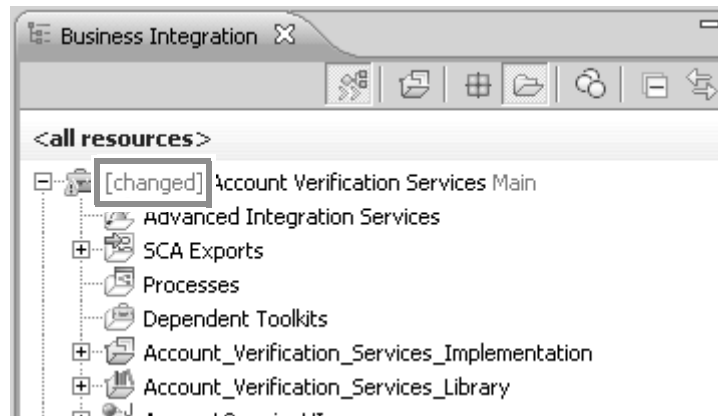
- ___ r. Click **File > Save All** to save your changes.
- ___ s. Notice the new icon for the export.



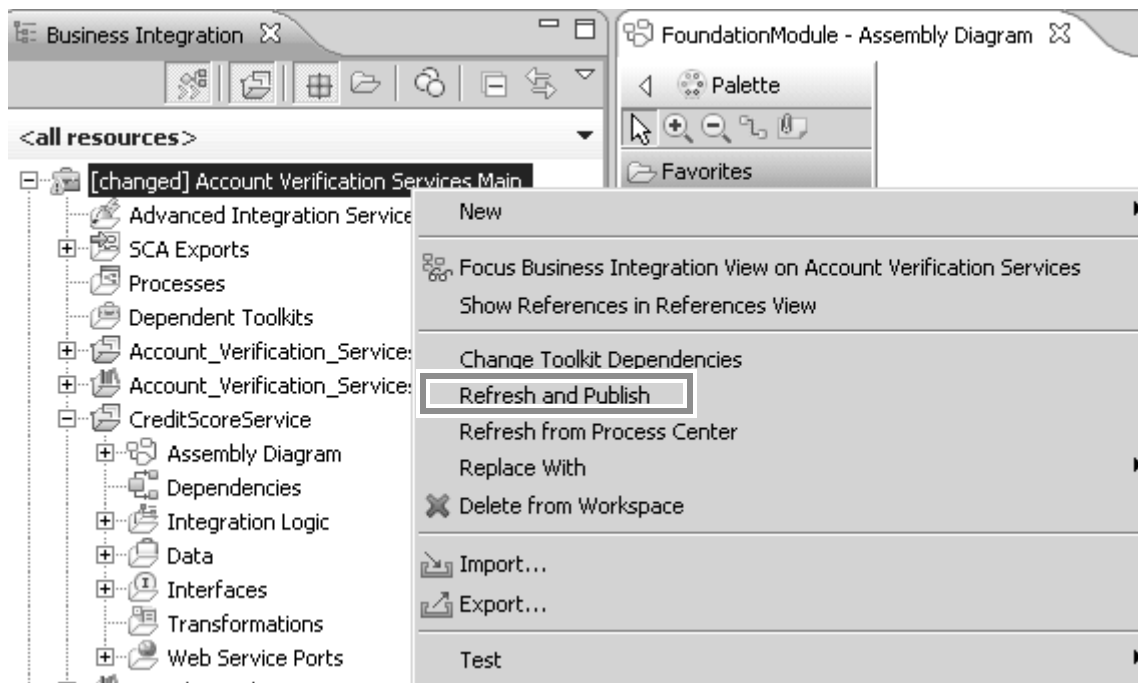
- ___ t. Expand **FoundationServices** and double-click **Assembly Diagram**.
- ___ u. Select the **Make operations visible to IBM Process Designer** for the export components in the assembly diagram, namely **RecordIneligibleApplicationExport**, **CreditAssessmentExport**, **GenerateDeclineExport**, and **SpecialDeclineExport**. The properties are in the **Binding** tab in the **Properties** view for the respective components.
- ___ v. Click **File > Save All** to save your changes.
- ___ w. Notice the new icon for the export.



- ___ 13. Examine the changed status of the **Account Verification Services Main** project. It is indicated by the newly added text **changed** that is to the left of the project.

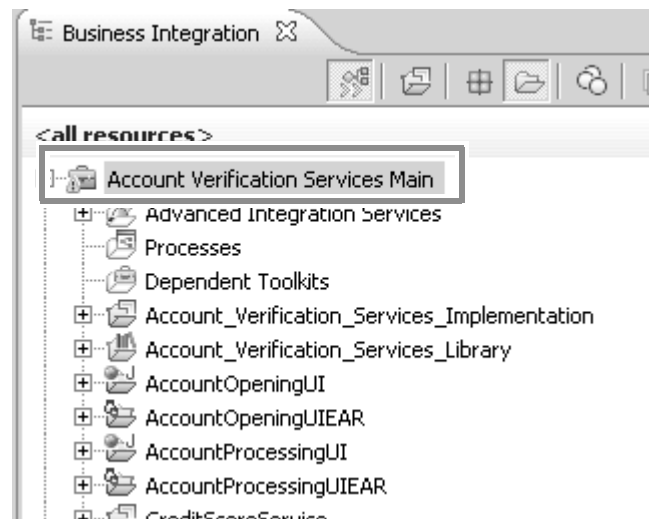


- ___ 14. Publish **Account Verification Services Main** to the Process Center.
- ___ a. Right-click **Account Verification Services Main** and select **Refresh and Publish** in the menu.



- ___ 15. Click **OK** when the **Library Mirroring** window opens.

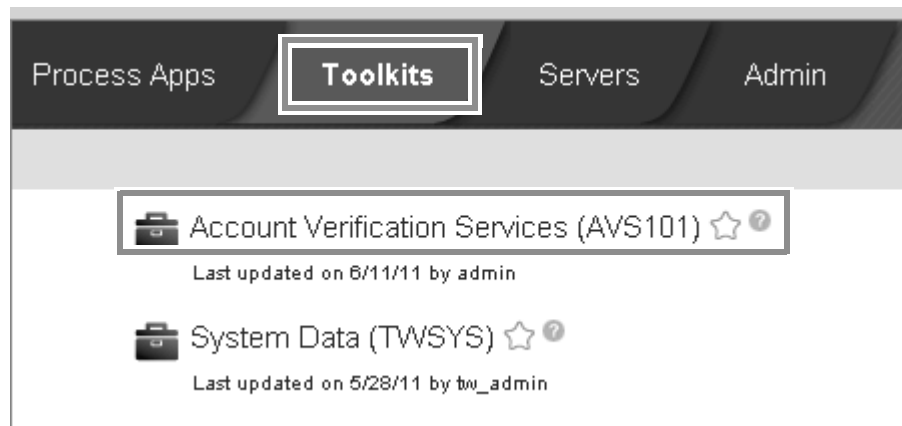
- ___ 16. Wait for the update to complete. It takes a few minutes for the status at the lower right to change. The update is complete when the text status **changed** is no longer displayed next to **Account Verification Services Main** as it did before.



Create a snapshot of the published toolkit

Snapshots record the state of library items within a process application or track at a specific point in time. You can create snapshots in the Process Center console or in the IBM Integration Designer view. Snapshot management, such as deploying, exporting, and archiving, is performed in the Process Center console.

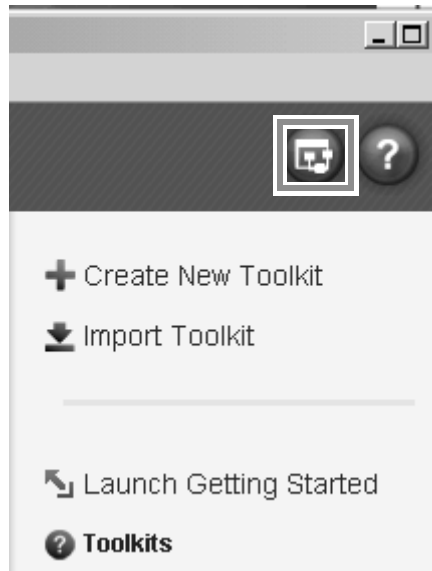
- ___ 1. Switch to the Process Center perspective and verify that you are in the **Toolkits** tab. There are two toolkits listed. Click **Account Verification Services (AVS101)**.



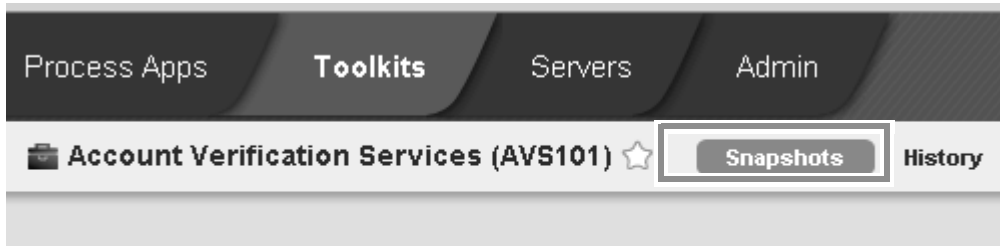


Troubleshooting

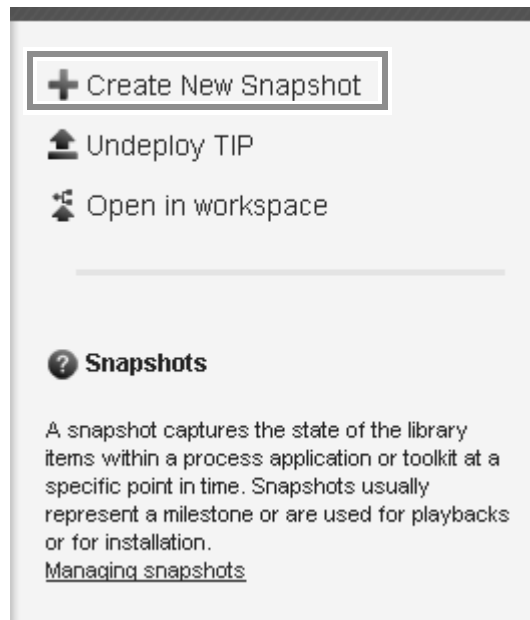
Sometimes, when working in IBM Process Center, if you click a tab then you may not see any object under that tab. If that occurs, click the **Business Integration** perspective icon at the upper right and then switch back to the **Process Center** perspective. The missing objects then appear in the tab. You may also refresh the contents by pressing F5 or right-clicking in the workspace and select **Refresh**.



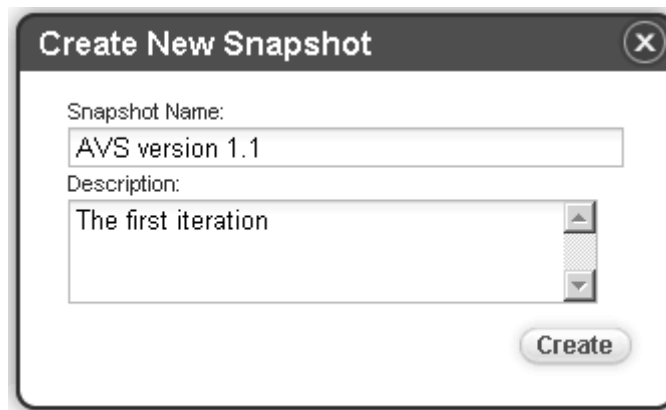
___ 2. Click the **Snapshots** tab.



- ___ 3. Click **Create New Snapshot** on the right.



- ___ 4. In the **Create New Snapshot** window, enter **AVS version 1.1** in the **Snapshot Name** field and enter **The first iteration** as the **Description**.

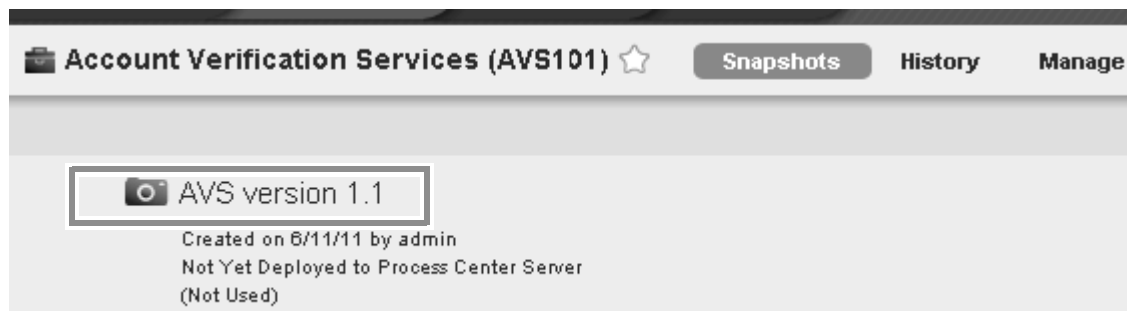


- ___ 5. Click **Create**. The toolkit is now ready to be shared among process developers.



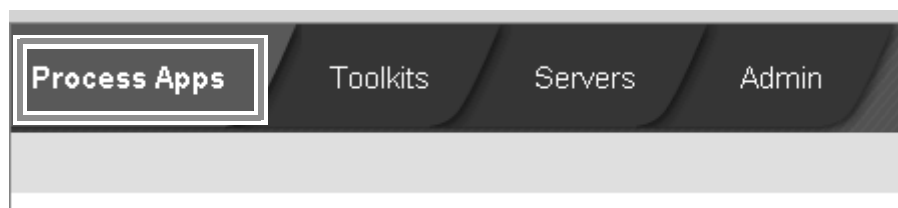
Troubleshooting

When you click **Create**, you may not see anything happening and the **Create New Snapshot** window may still be open and may not close. Clicking the **Create** button twice not make any difference to this behavior. While the new snapshot is being created, the **Create New Snapshot** window may not seem to close on its own. If that occurs, then wait couple of minutes and then Close the IBM Integration Designer. Restarting IBM Integration Designer corrects the problem and you see the newly created snapshot in the Process Center.

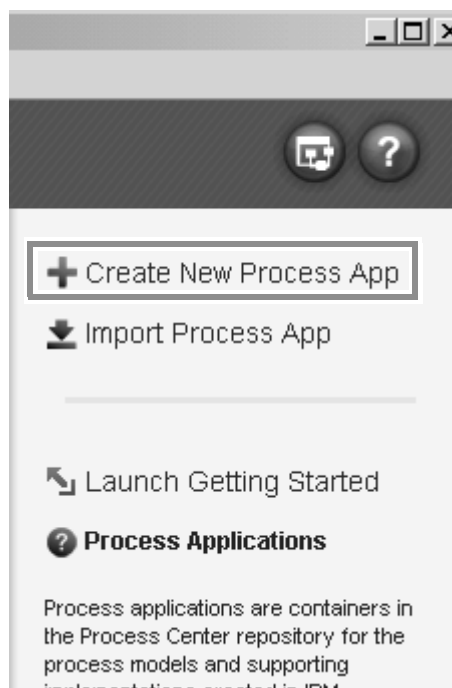


Part 5: Generate access to process applications and toolkits

- ___ 1. Switch to the **Process Apps** tab in the Process Center.



- ___ 2. Click **Create New Process App** to the upper right of the screen.

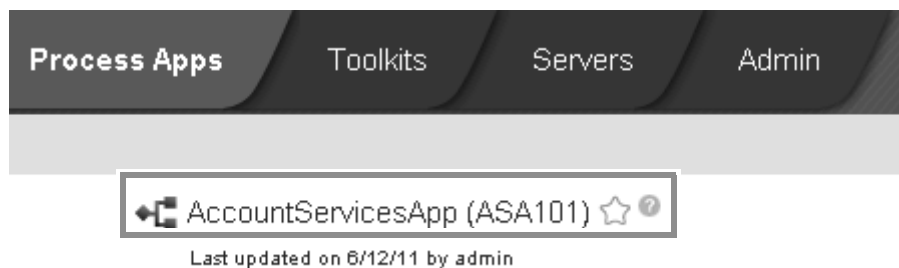


- ___ 3. In the **Create New Process App** window, enter the following information:
- **Process App Name:** AccountServicesApp
 - **Acronym:** ASA101
 - **Description:** The Account Services process application uses the Account Verification toolkit

**Hint**

The acronym must be unique in the repository. You may need to change this value in case this acronym is in use in the repository.

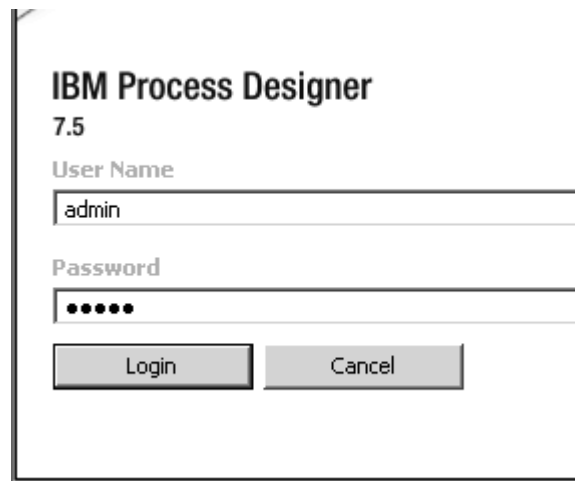
- ___ 4. Click **Create**. The newly created process application is listed in the tab.



- ___ 5. Set the dependency between the **AccountServicesApp** and the **Account Verification Services** toolkit.
- ___ a. Start IBM Process Designer and log in to the IBM Process Center repository. On the Windows desktop of your VMware image, locate the icon labeled **IBM Process Designer 7.5**.



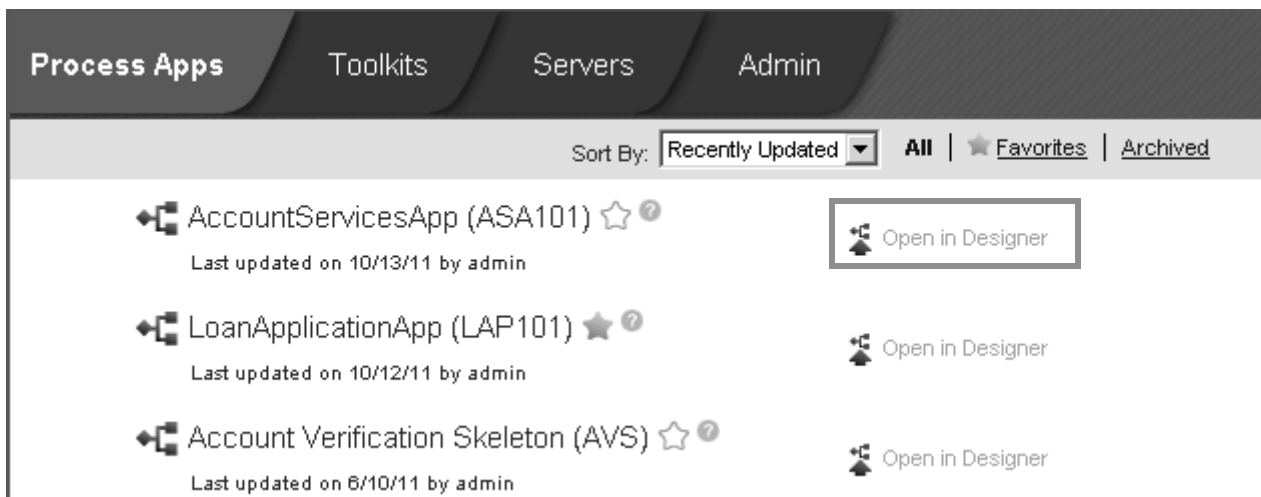
- ___ b. Double-click the icon or press Enter to launch IBM Process Designer.
- ___ c. As the splash screen for IBM Process Designer begins to load, you be prompted to enter a user name and password in order to connect to the IBM Process Center repository. Enter **admin** for the user name, and **admin** as the password.



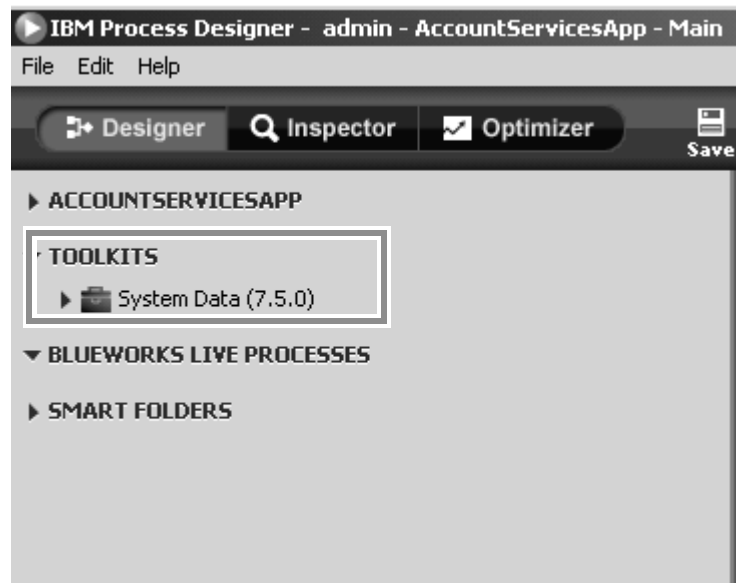
- ___ d. Select **Login**. After a few moments, IBM Process Designer starts.
- ___ e. If you are not already on the Process Center page, switch to the **Process Center** tab by clicking **Process Center** at the upper right.



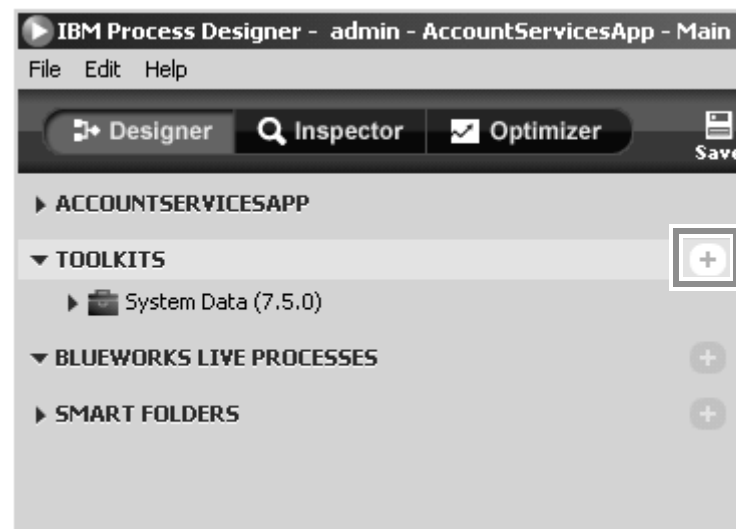
- ___ 6. Click **Open in Designer** next to **AccountServicesApp (ASA101)**,



- ___ 7. Expand **Toolkits**, if it is not already expanded. The default **System Data** toolkit is listed.



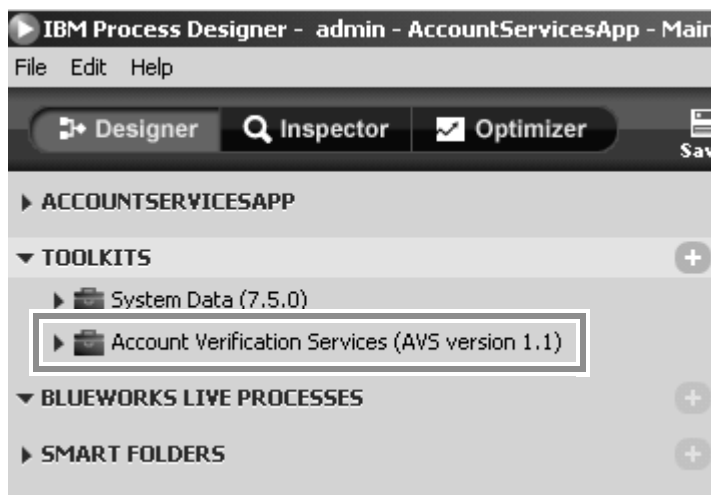
- ___ 8. Click the + symbol to the right of **Toolkits**. The + symbol is not visible by default. You have to hover over **Toolkits** to see the icon.



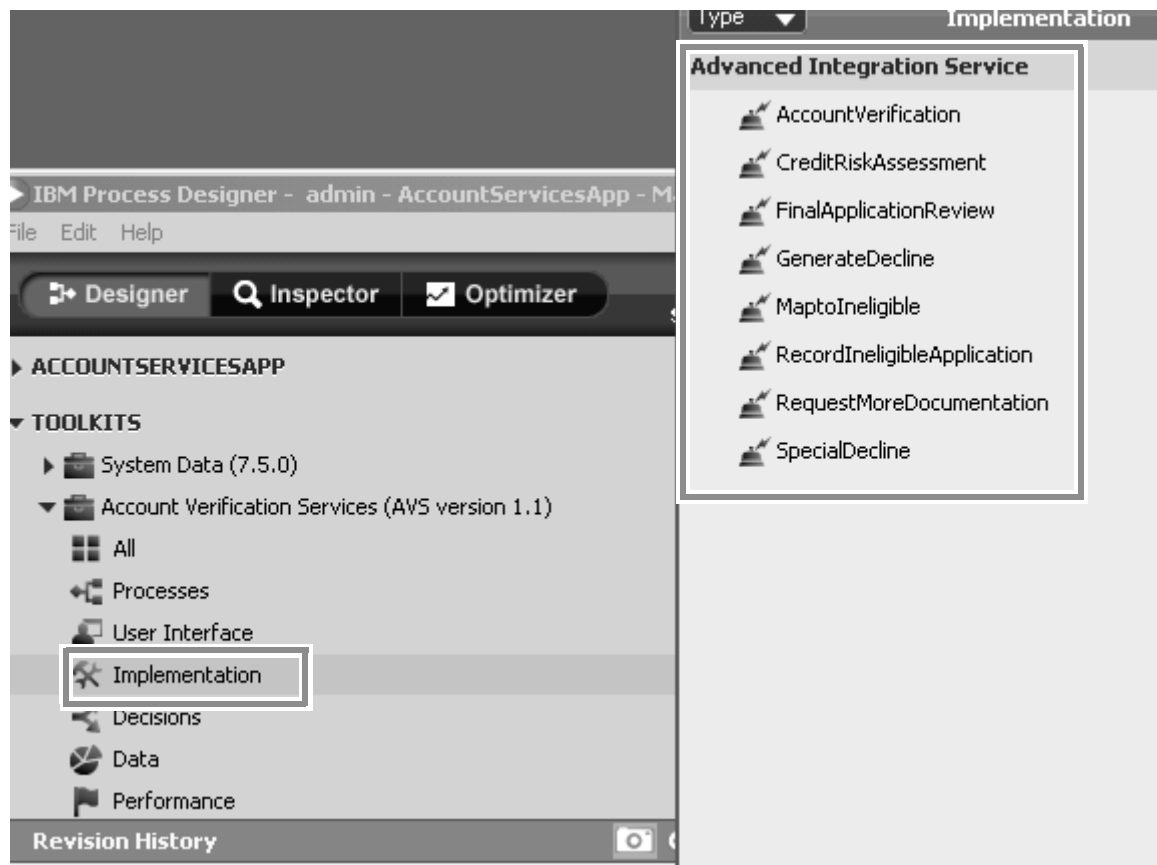
- ___ 9. Click **AVS Version 1.1** to add the dependency to the **AccountServicesApp** process application.



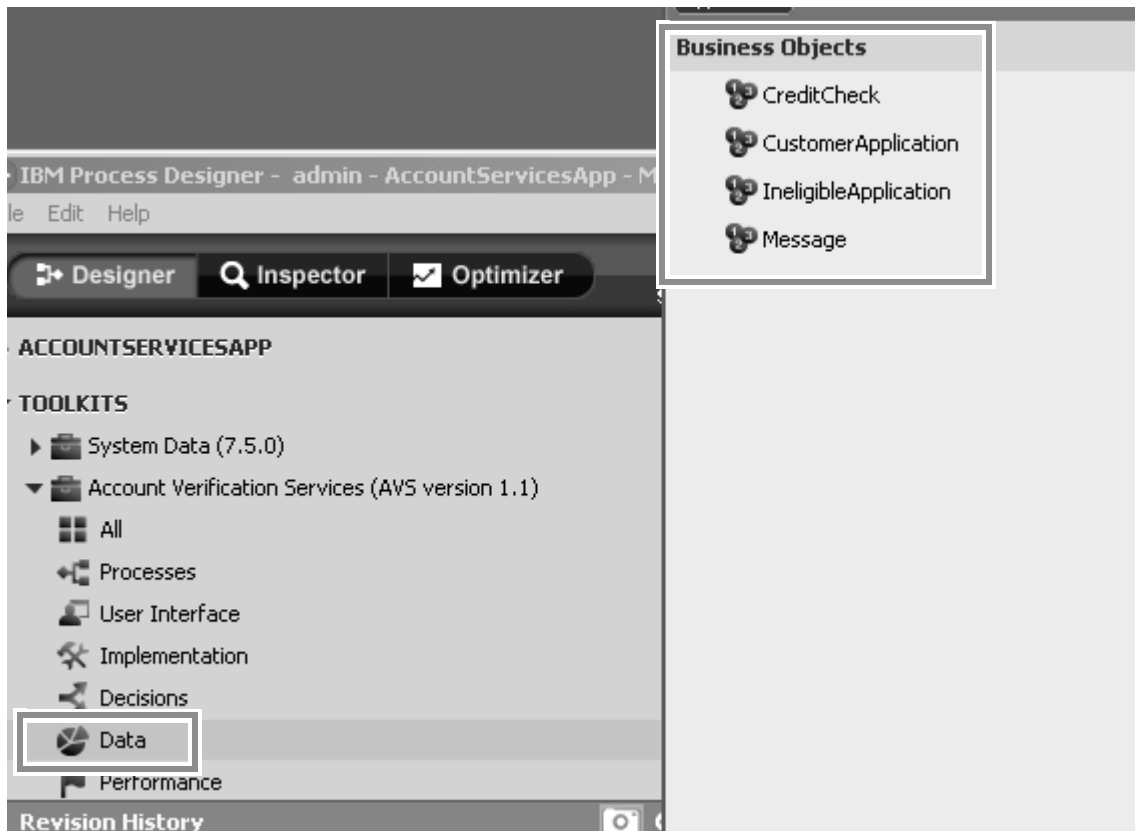
___ 10. Verify that the newly added dependency is listed under **Toolkits**.



___ 11. Expand **Account Verification Services (AVS version 1.1)** and click **Implementation** to view its contents.

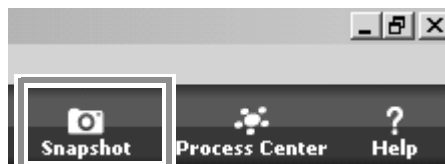


- ___ 12. Click **Data** to see a list of Business Objects from the SCA module.



Deploying the Account Services process application

- ___ 1. Before you deploy the process application, you must take its snapshot. In the Process Designer, click **Snapshot**.

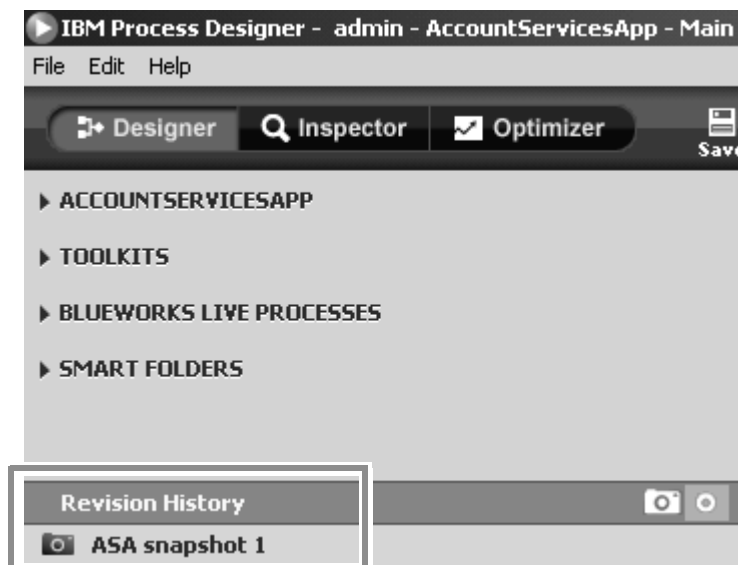


- ___ 2. In the **Take Snapshot** window, enter **ASA snapshot 1** in the **Enter the name of your new snapshot** field.

- ___ 3. Enter **New Process Application** with added dependency in the **Enter the description of your new snapshot** field.

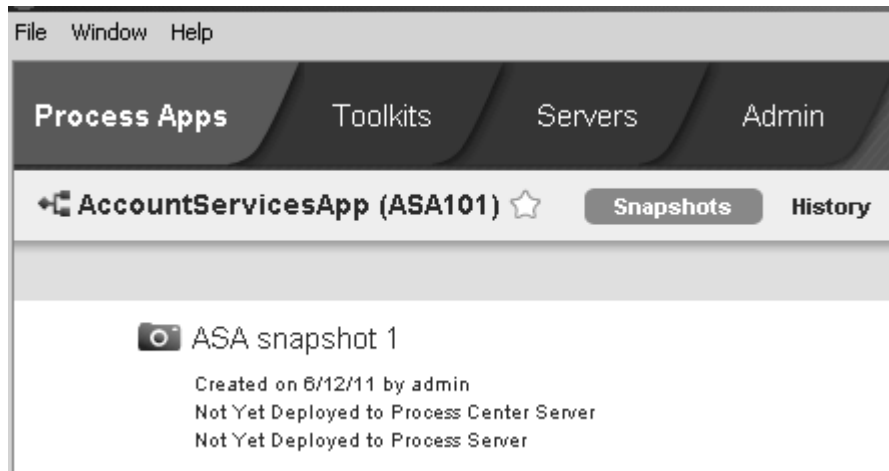


- ___ 4. Click **OK**.
- ___ 5. Verify that the new snapshot is listed below the **Revision History** section.



- ___ 6. Close the IBM Process Designer.
- ___ 7. Switch to the IBM Integration Designer window. Verify that you are in the Process Center perspective. Click the **Process Apps** tab.

- ___ 8. Click **AccountServicesApp (ASA101)**. The newly created snapshot is listed under the **Snapshots** tab.



- ___ 9. The message below the snapshot gives the deployment status. Currently the process application is not deployed. Before you deploy to the Process Server, the server needs to be started. Remember, that only the Process Center server is running. The IBM Process Server test environment needs to be started for deployment.
- ___ a. Switch to the Business Integration perspective. Click **Window > Switch to Business Integration**.
 - ___ b. Select the **Servers** view.
 - ___ c. Select the **IBM Process Server v7.5 at localhost** server, and click the **Start** icon. It takes several minutes for the server to start. Now may be a good time to take a break.



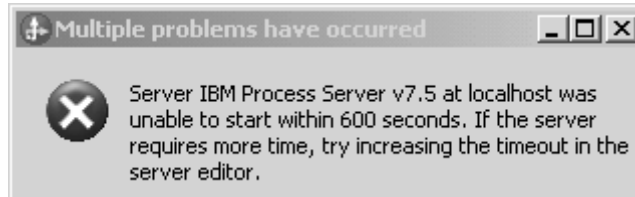
Note

The lab environment is running on a VMware image and is limited by system resources. You have IBM Integration Designer running along with IBM Process Center server. The VMware image is restricted by its memory and it is being used to its full potential. Running another instance of the server now, in this case the WTE Process Server, is a heavy load for the VMware image. Consequently, you can expect things to run slower than normal. The server startup time may vary and could be 15 - 20 minutes, depending on the resources.



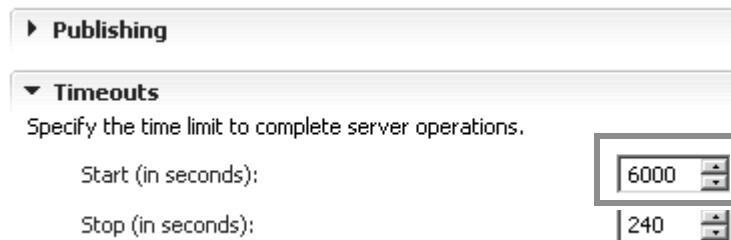
Troubleshooting

Depending upon your environment, it may take a long time to start the IBM Process Server test server. If it takes longer than 10 minutes (600 seconds), the server times out and generates an error.



If this problem occurs, try raising the timeout value on the server.

- In the **Servers** view, right-click **IBM Process Server v7.5 at localhost** and click **Open**.
- Locate the **Timeouts** section and expand it, if necessary.
- Increase the **Start (in seconds)** field to 6000.



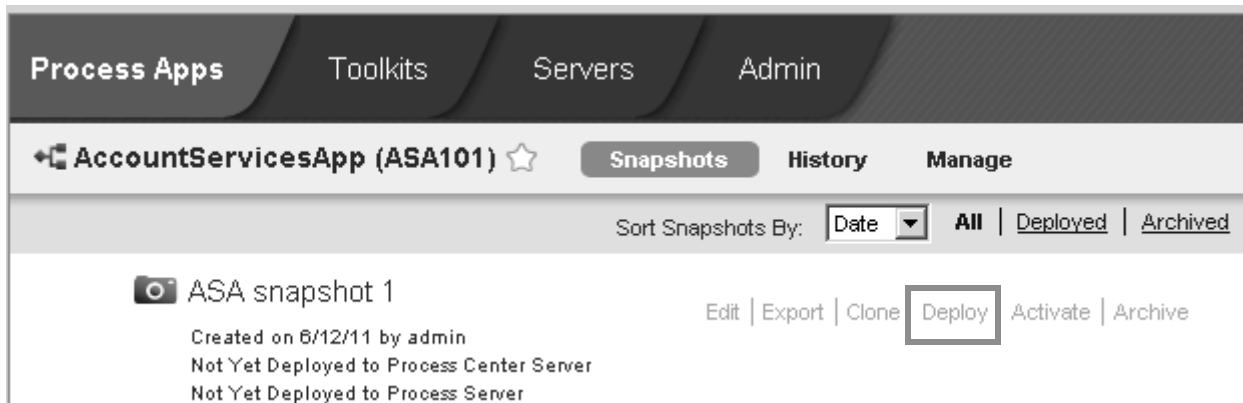
- Save your changes.

Start the server again. By increasing the timeout value, the server starts with no error.

___ 10. Once the server has started, return to the Process Center perspective.

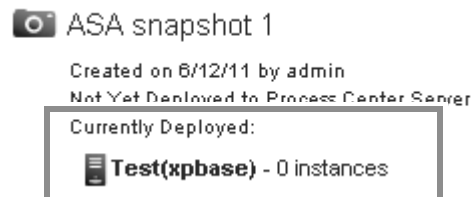
___ 11. Return to the **Process Apps** tab and select **ASA snapshot 1**.

___ 12. Click **Deploy**.



___ 13. In the **Deploy Snapshot to Server** window, select **Test (xpbase)**. A check mark appears to the right.

___ 14. Click **Deploy** at the lower right of the window to begin deployment. It takes a few minutes for the process application to deploy to the WTE Process Server. In the meantime, do not click other options in the Process Center. Once it is deployed, the status displayed is **Currently Deployed** along with **Test(xpbase)** listed.



___ 15. Click **Activate** next to **ASA snapshot 1** to activate the process application on the WTE Process Sever. Once activated, the Not Yet Deployed... message disappears.



Troubleshooting

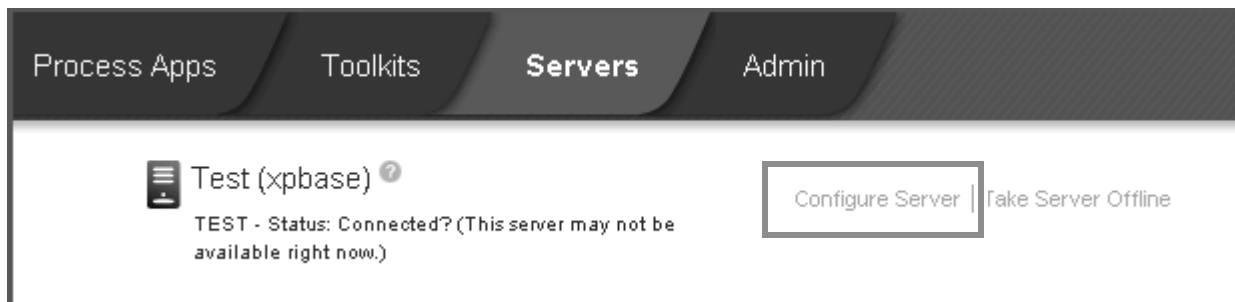
In the interest of conserving memory, you may now choose to close IBM Integration Designer before you continue with IBM Process Designer.

___ 16. Switch to IBM Process Designer window. If you closed it earlier, you can launch it by double-clicking the shortcut icon for IBM Process Designer 7.5 on the desktop.

___ 17. Log in using `admin` for the **User Name** and **Password** fields.

___ 18. Click the **Servers** tab.

___ 19. Click the **Configure Server** link.



Note

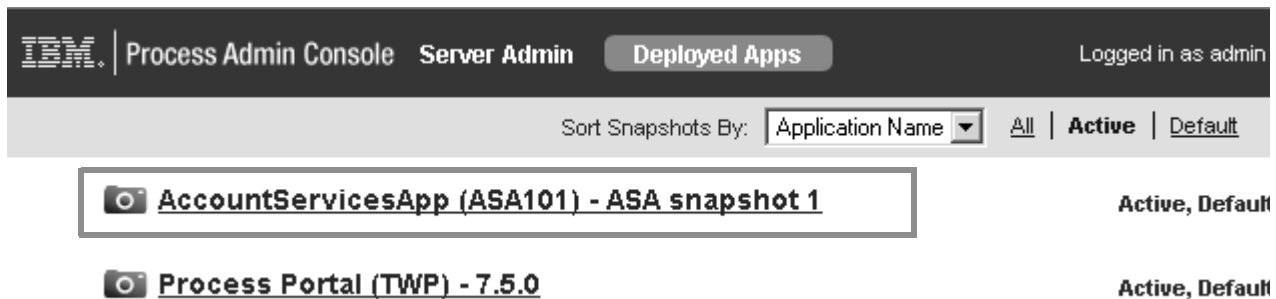
The **Configure Server** link does not seem to work if you click it in the **Servers** tab within Process Center console using IBM Integration Designer. However, it works successfully if launched the way you just did, which is using the IBM Process Designer.

___ 20. Log in using **admin** for the **User Name** and **Password** fields.

___ 21. Click **Deployed Apps** at the top.



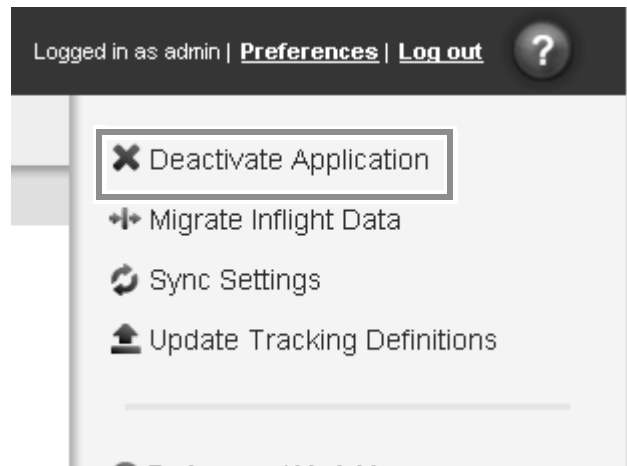
___ 22. Note the **AccountServicesApp** listed among the deployed applications.



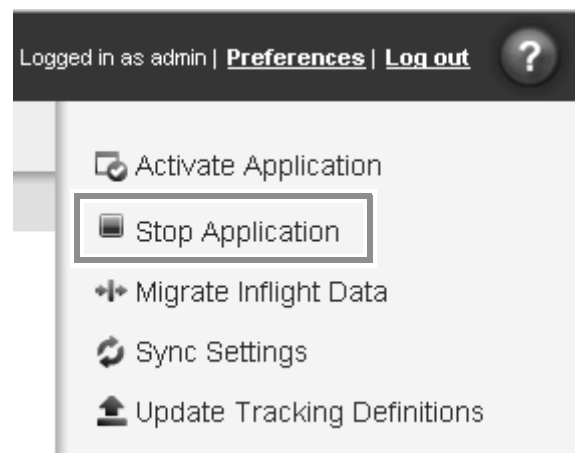
Undeploying the Account Services process application

___ 1. In the **Deployed Apps** panel of the console, click **AccountServicesApp (ASA101)**.

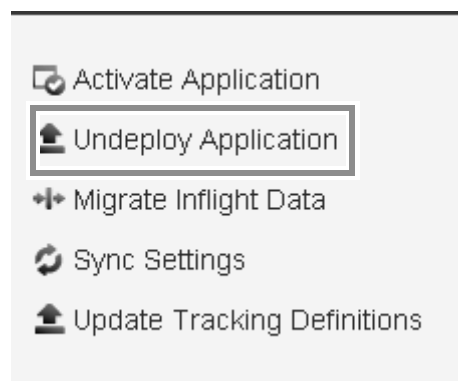
- ___ 2. Click **Deactivate Application** on the upper right corner.



- ___ 3. In the **Deactivate Deployed Application** dialog, click **OK** to confirm the deactivation.
- ___ 4. Once the application has been deactivated, a new **Stop Application** link appears on the right. Click that link.



- ___ 5. In the **Stop Deployed Application** dialog, click **OK**.
- ___ 6. Once the application has been deactivated, a new **Undeploy Application** link appears on the right. Click that link.



- ___ 7. In the **Undeploy Application** dialog, click **OK**. The application is removed from deployment.
- ___ 8. Log out and close the administration console.
- ___ 9. Return to the Business Integration perspective in IBM Integration Designer.

**Hint**

If you closed IBM Integration Designer earlier to conserve resources, you can stop IBM Process Server from a command line. On the Windows desktop, click the icon to open a command line. Change the working directory to the IBM Process Server profile directory with this command:

```
cd "C:\Program Files\IBM\WebSphere\AppServer\profiles\qbpmaps\bin"
```

Use this command to stop the server:

```
stopServer.bat server1
```

If you are prompted to enter a user name and password, use **admin** for both.

- ___ 10. In the **Servers** view, select IBM Process Server and click the stop icon to stop the server.
- ___ 11. Stop the Process Center server. On the desktop, select the shortcut labeled **Stop the Process Center server**. Double-click the shortcut or press **Enter** to stop the server.

End of exercise

Exercise 4. Implementing core business process artifacts

Estimated time

01:15

What this exercise is about

IBM Process Designer is a development environment intended to help teams model business processes. IBM Integration Designer is a development environment intended to help teams build and develop complex, technical integrations and code. Some assets in IBM Process Designer are similar to the ones created in IBM Integration Designer. These assets have been divided into two groups: the core business process artifacts and the business activity process artifacts.

What you should be able to do

After completing this exercise, you should be able to:

- Create a simple BPD in IBM Process Designer
- Create data objects to support a BPD in IBM Process Designer
- Compare business processes in IBM Process Designer to IBM Integration Designer
- Compare data objects in IBM Process Designer to IBM Integration Designer

Introduction

In this exercise, you compare the implementation of core business process artifacts between IBM Process Designer and IBM Integration Designer. These core artifacts include containers (such as process apps and toolkits), business objects, and business processes.

You explore IBM Process Center using the IBM Process Center console. You import Hiring Sample Copy process application into the existing IBM Integration Designer workspace. You create a toolkit within the Process Center and then bring the empty template into the Business Integration project. The existing Accounts Verification project is then imported into that existing workspace and after few activities you publish the project with all its contents to the Process Center.

You associate the toolkit with a new business application using the IBM Process Designer and you deploy the business application to the WTE Process Server. Finally, you undeploy the application.

Requirements

Completing the exercises for this course requires a VMware image lab environment that includes the exercise support files, IBM Integration Designer, and the IBM Process Server test environment.

Instructor exercise overview

For students who have experience with previous versions of the product, such as WebSphere Process Server, the business process assets of IBM Process Designer are new. These new assets have been divided into two related exercises: the core business process artifacts, and the artifacts for working with business process activities.

This exercise focuses on the core business process artifacts. In IBM Process Designer, these assets are containers (such as process apps and toolkits), data (in the form of business objects), and business processes. In IBM Process Designer, these business processes are modeled as business process diagrams (BPD).

Exercise instructions

Part 1: Explore Process Apps and Toolkits

In this part of the exercise, you explore the main components of IBM Process Designer. IBM Process Designer enables teams to model and implement a business process. You explore how to create a business process definition (BPD) and the data objects inside a process application.

Start IBM Process Designer

- ___ 1. On your Windows desktop in the VMware image, select the shortcut titled: **Start the Process Center server**. Double-click or press **Enter** to launch the shortcut.

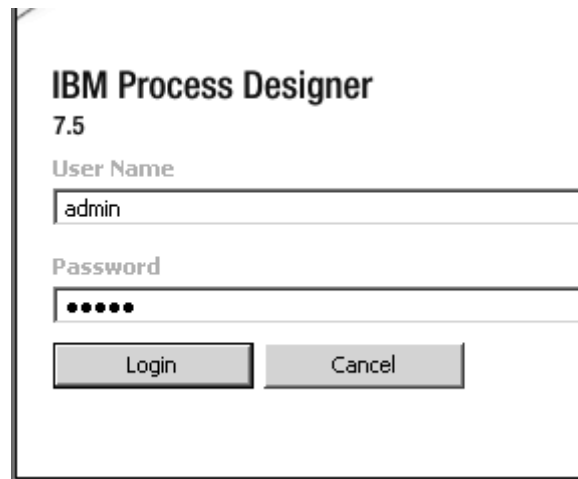


Once you do, a DOS command window appear, and the IBM Process Center server instance start. IBM Process Center is an application running in its own profile of WebSphere Application Server. That profile is connected to a DB2 repository where IBM Process Center stores its BPD artifacts.

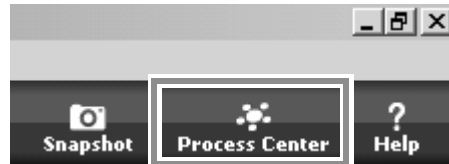
- ___ 2. It takes several minutes for IBM Process Center to start. Once it has started, the DOS command window disappear without notice or warning.
- ___ 3. Once IBM Process Center has started, you may start IBM Process Designer and log in to the IBM Process Center repository.
 - ___ a. On the Windows desktop of your VMware image, locate the icon labeled **IBM Process Designer 7.5**



- ___ b. Double-click the icon or press **Enter** to launch IBM Process Designer.
- ___ c. As the splash screen for IBM Process Designer begins to load, you are prompted to enter a user name and password in order to connect to the IBM Process Center repository. Enter **admin** for the user name, and **admin** as the password.

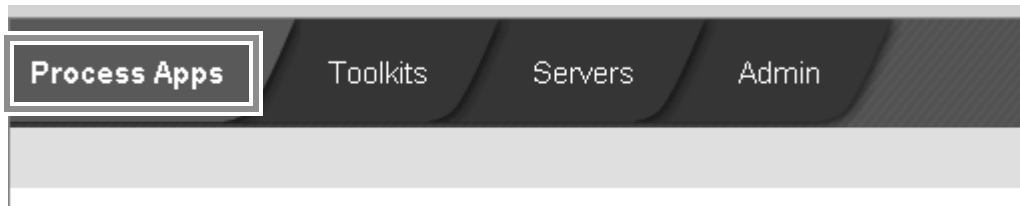


- ___ d. Select **Login**. After a few moments, IBM Process Designer starts.
- ___ 4. Switch to the Process Center perspective, if it is not already displayed.

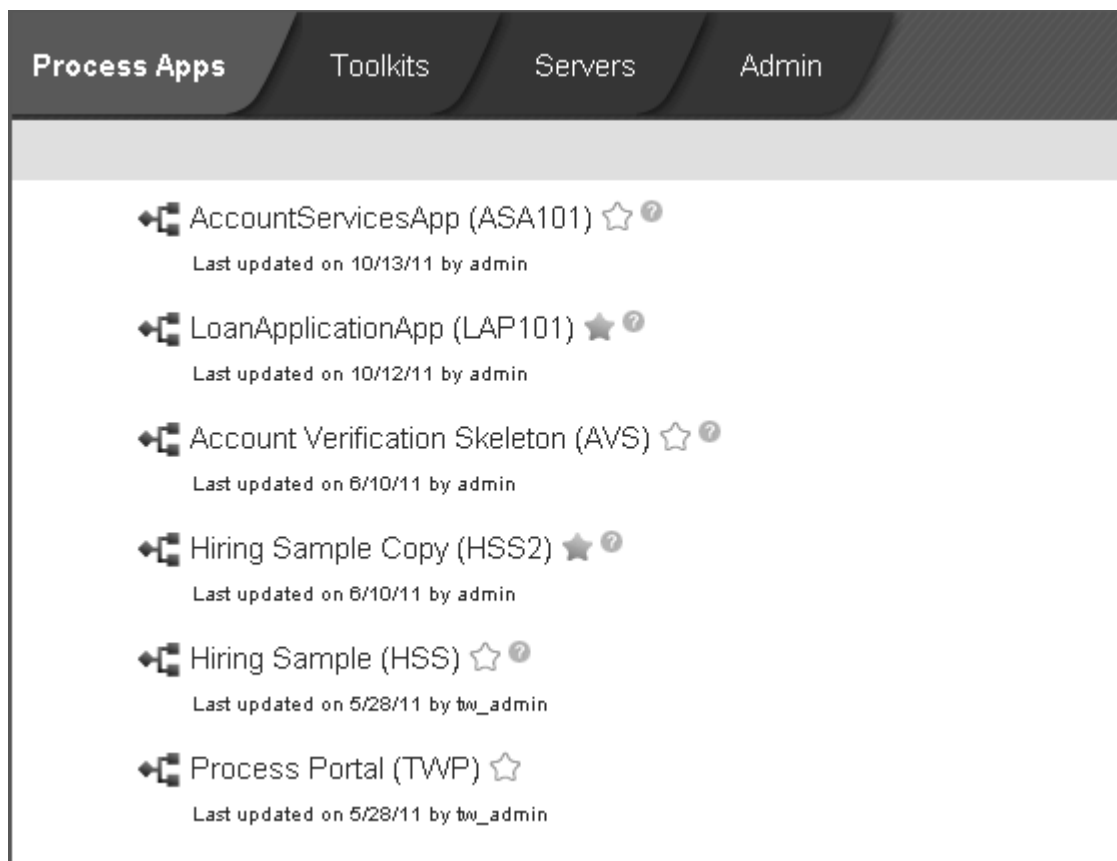


Process Applications and Toolkits

- ___ 1. In the Process Center perspective, click the **Process Apps** tab.



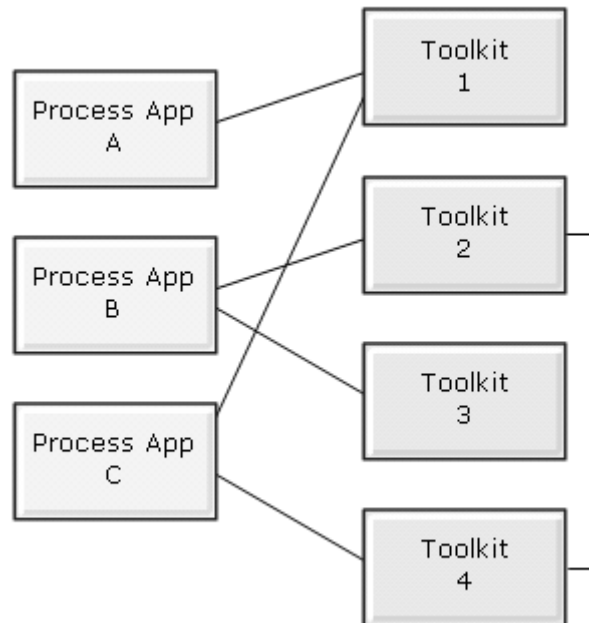
- ___ 2. You have already created a process app. Creating a process app is a first step when you are ready to start building business processes in IBM Process Designer. Examine the list of all the process applications which currently reside in the IBM Process Center repository:



- ___ 3. In the Process Center perspective, click the **Toolkits** tab.

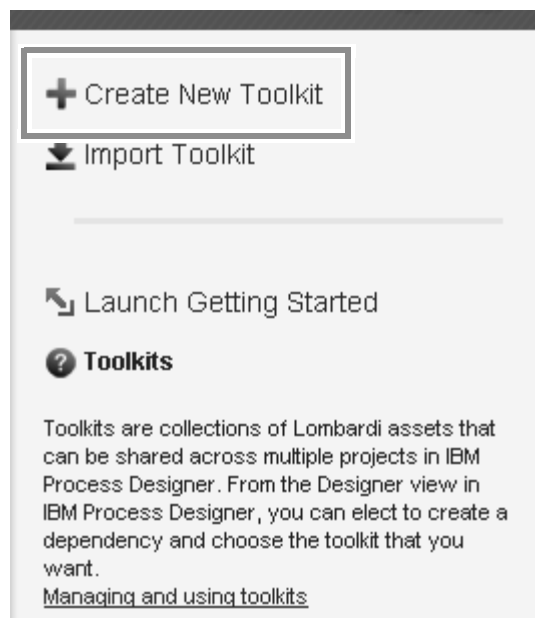


- ___ 4. You have already created a toolkit. Create toolkits to enable IBM Process Designer users to share library items across process applications or across other toolkits. As you can determine from the following diagram, a process application may have one or more dependent toolkits. Similarly, in IBM Integration Designer, a module may have one or more dependent libraries.

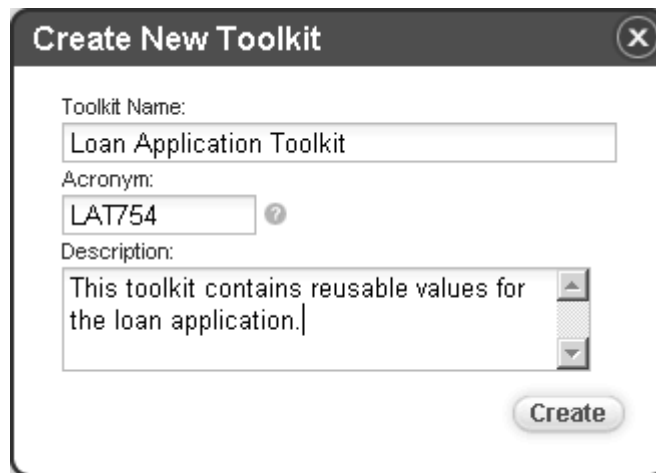


You can also notice that a toolkit may have a dependency on another toolkit.

- ___ 5. Explore the **System Data** toolkit. By default, each process application and toolkit that you create automatically includes a dependency on the **System Data** toolkit.
- ___ 6. Click **Create New Toolkit**.



- ___ 7. Name the toolkit **Loan Application Toolkit**, set its **Acronym** to **LAT754**, and add the following description: **This toolkit contains reusable values for the loan application.**



Create New Toolkit

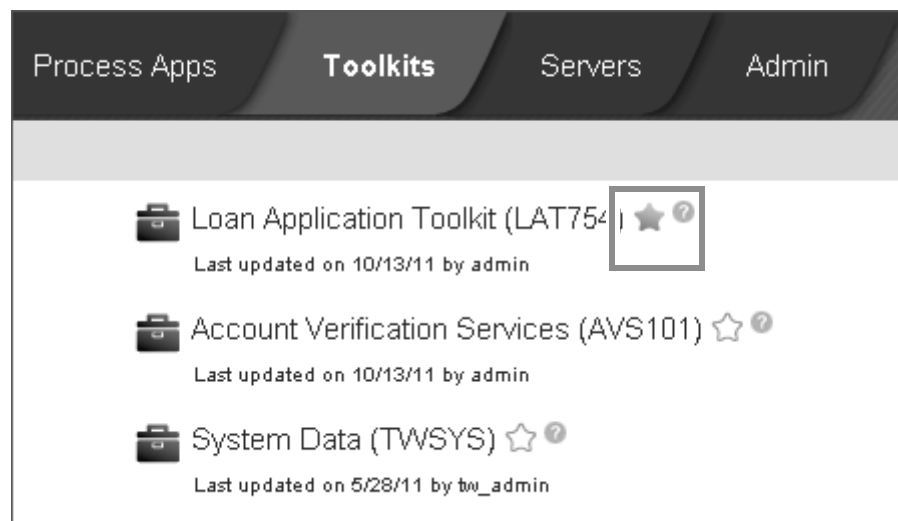
Toolkit Name:
Loan Application Toolkit

Acronym:
LAT754

Description:
This toolkit contains reusable values for the loan application.

Create

- ___ 8. Click **Create**.
- ___ 9. Mark the toolkit as a favorite.

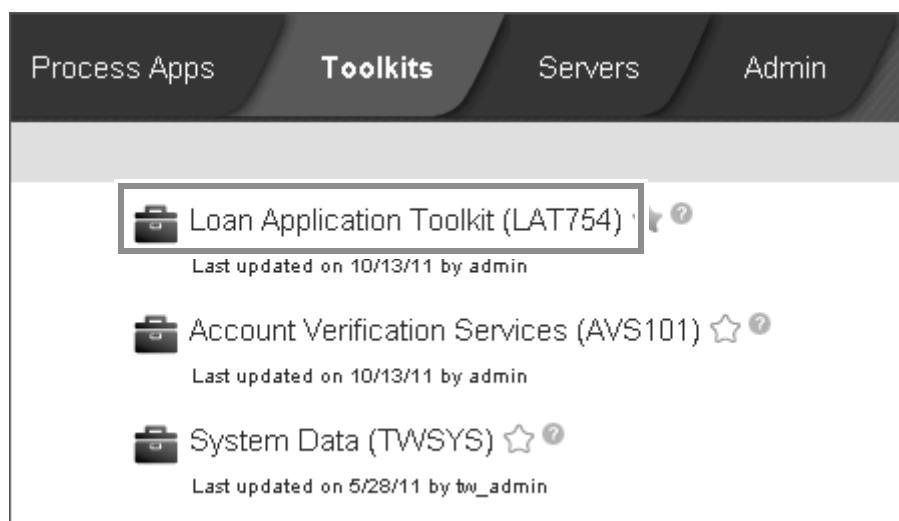


Managing access to Process Applications and Toolkits

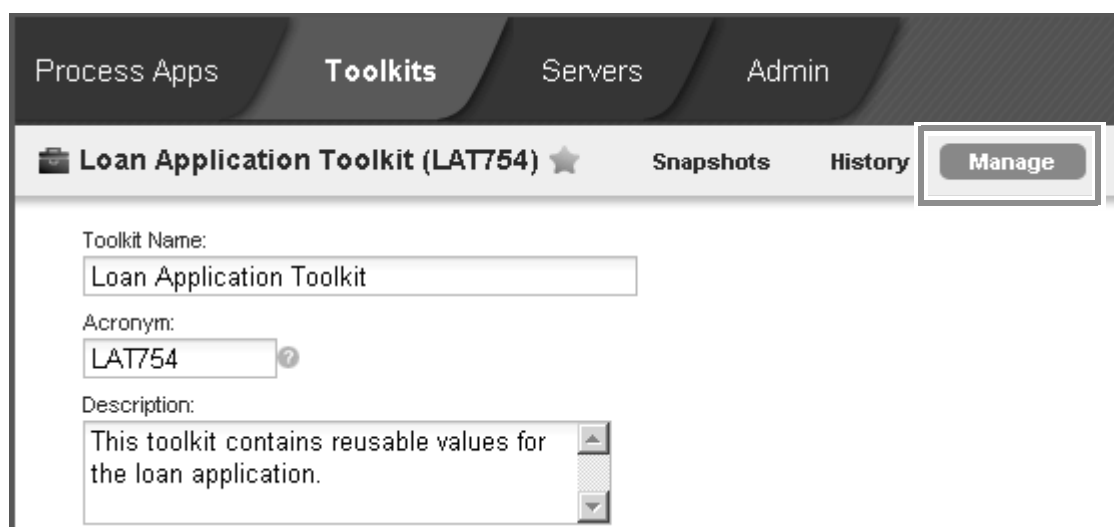
As soon as the administrator or the owner creates a process application or toolkit, the next step is to grant access for other users, who may also need to access.

The name and the date of the user who last updated the process application is mentioned just below the name of the process application. For the toolkit named **Loan Application Toolkit (LAT754)**, this user is **admin**.

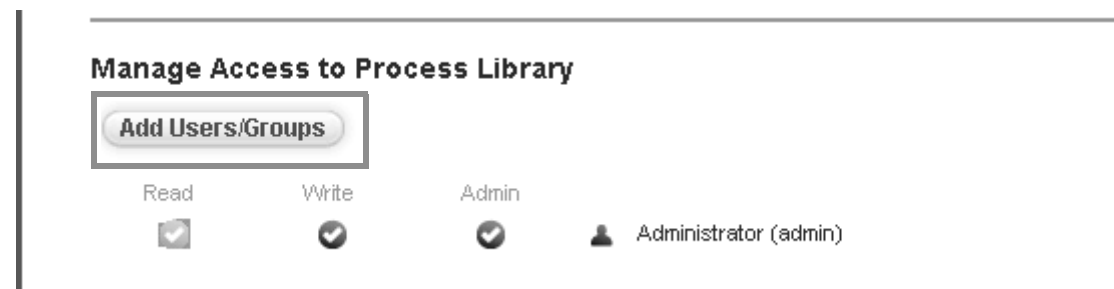
- ___ 1. In the Process Center perspective, click the **Loan Application Toolkit (LAT754)** toolkit.



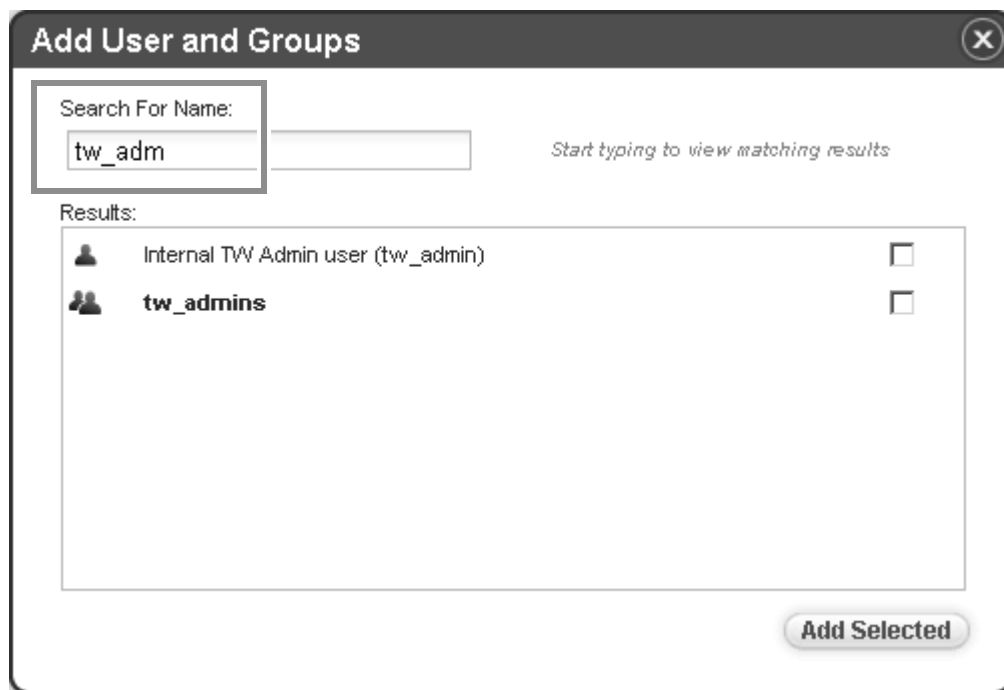
___ 2. Click the **Manage** tab.



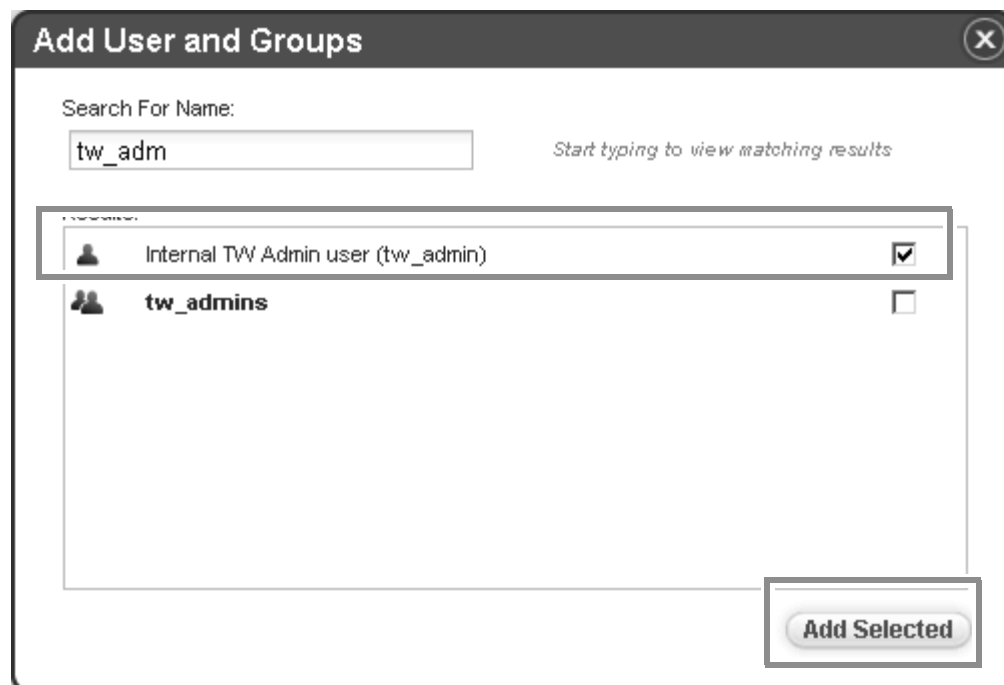
___ 3. Click **Add Users/Groups**.



___ 4. In the **Add Users and Groups** dialog, start typing the name `tw_admin` in the **Search For Name** field. You can enter part of the name; all accounts that match the name are displayed.



- ___ 5. Click the check box next to the user **Internal TW Admin user (tw_admin)** and click the **Add Selected** button.



- ___ 6. The user named **tw_admin** has been added to the access list. By default, the user only has **Read** permission.

Process Apps **Toolkits** Servers Admin

Loan Application Toolkit (LAT754) ★ Snapshots History **Manage**

Toolkit Name:

Acronym:

Description:

Manage Access to Process Library

Add Users/Groups

Read	Write	Admin	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Administrator (admin)
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Internal TWV Admin user (tw_admin)

- ___ 7. Provide the **admin** user with **Write** and **Admin** access by clicking the corresponding check boxes.

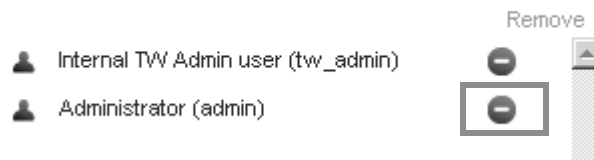


Information

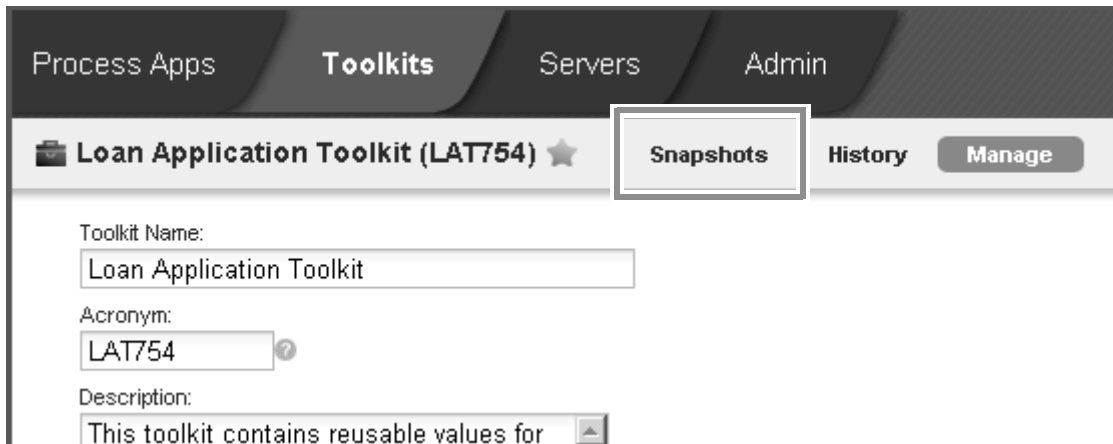
The different permissions are:

1. **Read** Users with Read access can view the process application or toolkit in the Process Center console, as well as view all library items included in the process application or toolkit in the Designer view. However, with Read access, edits are not allowed.
2. **Write** Users with Write access can view the process application or toolkit in the Process Center console. Plus, they can create, edit, or delete library items within the process application or toolkit in the Designer view. Users with Write access can also create and edit snapshots of the process application or toolkit in either the Process Center console or Designer view.
3. **Admin** Users with Admin access have all the capabilities included with Write access plus the ability to perform the following actions in the Process Center console: edit process application or toolkit settings; create, edit, or archive tracks; archive snapshots; and modify user access to the process application or toolkit.

You can remove access by clicking the minus (-) sign next to the user.



- ___ 4. Click the **Snapshots** tab.



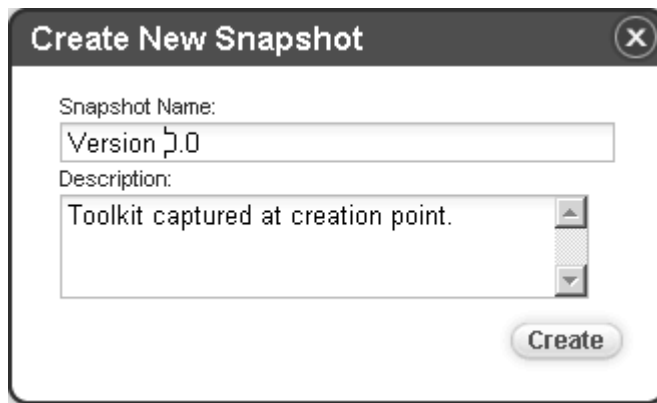
- ___ 5. Click **Create New Snapshot**. It captures the toolkit at its creation point, and enables it for sharing with process apps and other toolkits.



Note

In order to share a toolkit with a process app or another toolkit, you must first create a snapshot. You cannot add a toolkit as a dependency without at least one snapshot.

- ___ a. Set the **Snapshot Name** to Version 0.0
- ___ b. Set the **Description** to Toolkit captured at creation point.

A dialog box titled "Create New Snapshot" with a close button (X) in the top right corner. It contains two text input fields: "Snapshot Name:" with the text "Version 1.0" and "Description:" with the text "Toolkit captured at creation point." Below the description field is a vertical scrollbar. At the bottom right is a "Create" button.

Create New Snapshot

Snapshot Name:
Version 1.0

Description:
Toolkit captured at creation point.

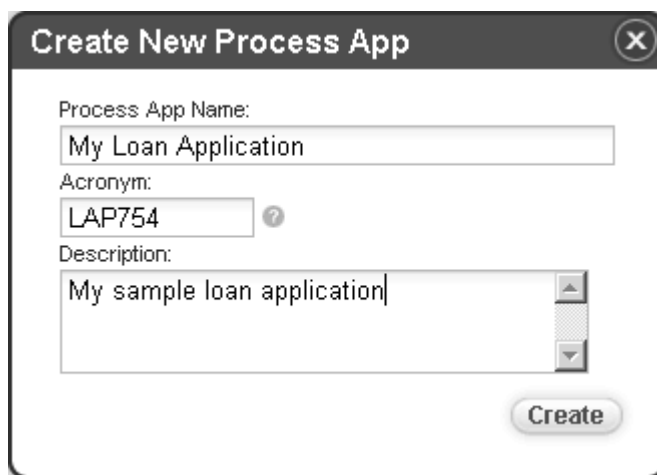
Create

- ___ c. Click **Create**.

Part 2: Explore a simple business process definition (BPD) in IBM Process Designer

A Business Process Definition (BPD) is the reusable model of the business process. In this part of the lab exercise, you create and explore a business process definition of the **My Loan Application** process application.

- ___ 1. Click the **Process Apps** tab.
- ___ 2. Click **Create New Process App**.
- ___ a. Set the **Process App Name** to **My Loan Application**
- ___ b. Set the **Acronym** to **LAP754**
- ___ c. Set the **Description** to **My sample loan application**.

A dialog box titled "Create New Process App" with a close button (X) in the top right corner. It contains three text input fields: "Process App Name:" with the text "My Loan Application", "Acronym:" with the text "LAP754" and a question mark icon, and "Description:" with the text "My sample loan application". Below the description field is a vertical scrollbar. At the bottom right is a "Create" button.

Create New Process App

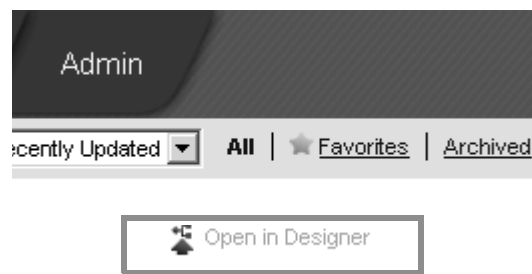
Process App Name:
My Loan Application

Acronym:
LAP754 ?

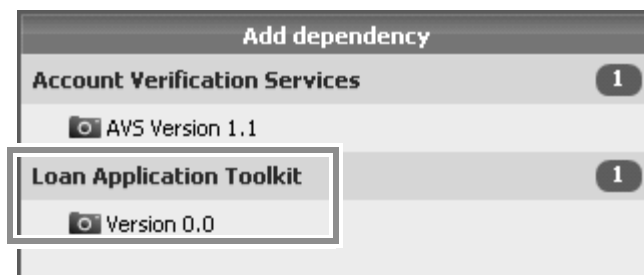
Description:
My sample loan application

Create

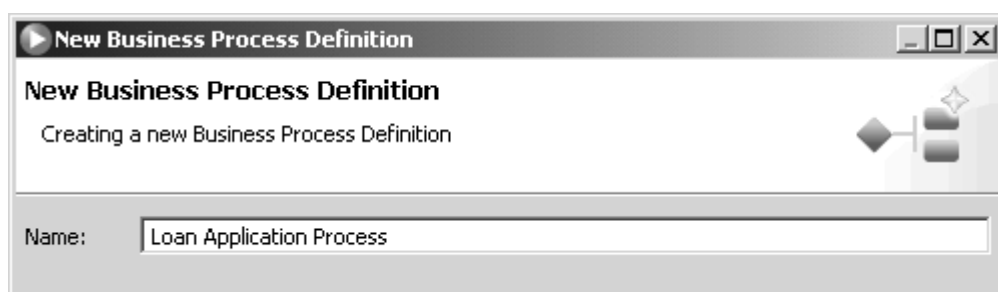
- ___ 3. Click **Create**.
- ___ 4. Open the **My Loan Application** process application in IBM Process Designer. Click the **Open in Designer** link next to the **My Loan Application** process app.



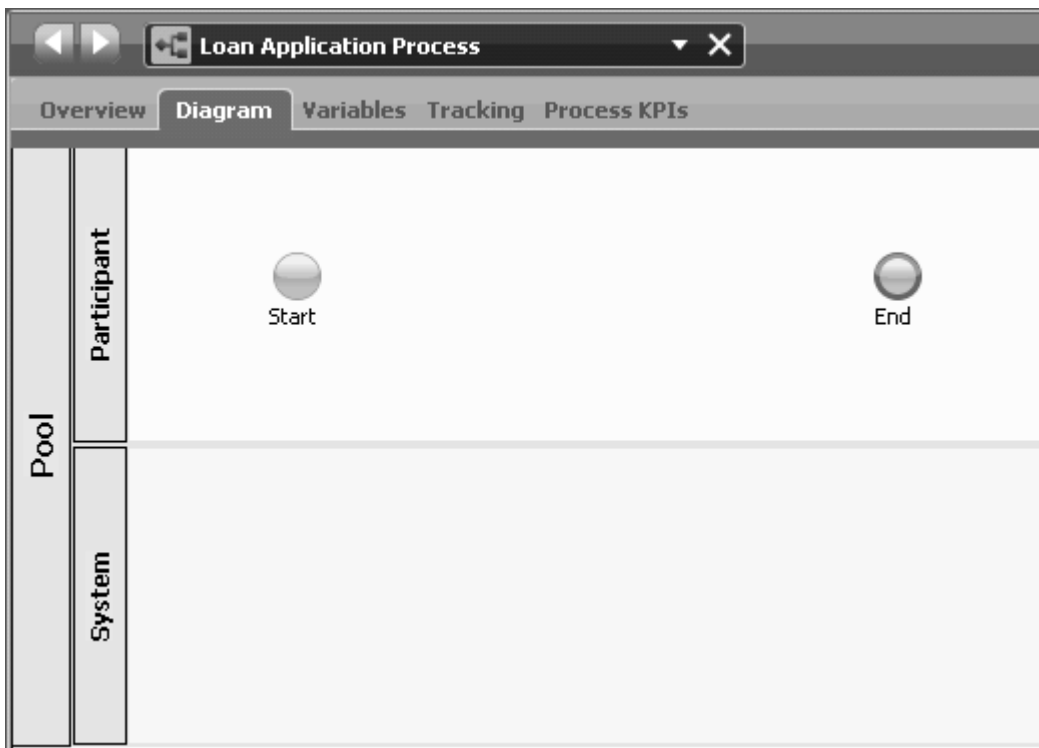
- ___ 5. Add the **Loan Application Toolkit** as a dependency to the process app.
 - ___ a. The **Loan Application Toolkit**, by default, contains the **System Data** toolkit.
 - ___ b. Click the plus (+) sign next to the **Toolkits** section. You may need to hover next to the **Toolkits** section to see the plus sign.
 - ___ c. Click **Version 0.0** of the **Loan Application Toolkit** to add it as a dependency.



- ___ 6. Click the plus (+) sign next to **Processes** to add a business process definition.
- ___ 7. Click **Business Process Definition**.
- ___ 8. Set the **Name** of the new business process definition to **Loan Application Process**



- ___ 9. Click **Finish**. The business process application opens in the Designer view.



- ___ 10. There are lanes to capture the different roles participating in the BPD. The default lanes are **Participant** and **System**. Each lane in a business process represents the activities to be performed by that group of participants or users. It is important to remember that a participant is a role, and not a person.

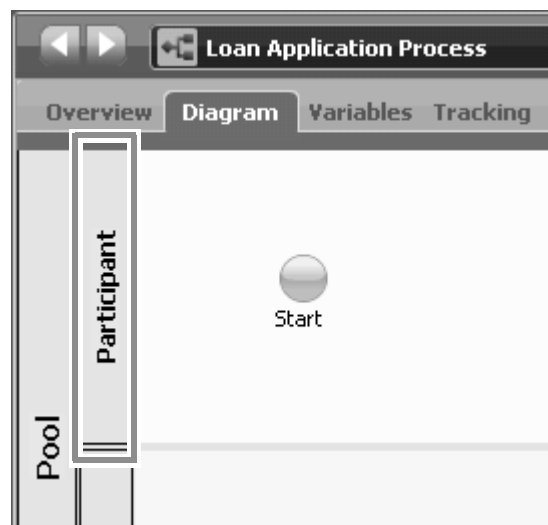


Information

New lanes can be created by selecting the **Lane** element from the **Element Palette** on the right side.



- ___ 11. Click the **Participant** lane.



- ___ 12. At the bottom of the window, examine the **Properties** tab. **All Users** is the default lane participant group. Click the **New** button in the **Behavior** section.



Information

You can select any group for assigning lane activities by clicking the **Select** button. There are currently only three default participant groups in this process app.

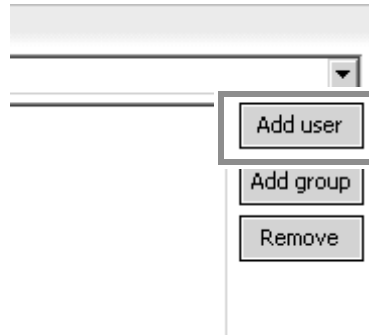
You may only assign one participant group to the lane.

- ___ 13. Name the participant group **Admins**.

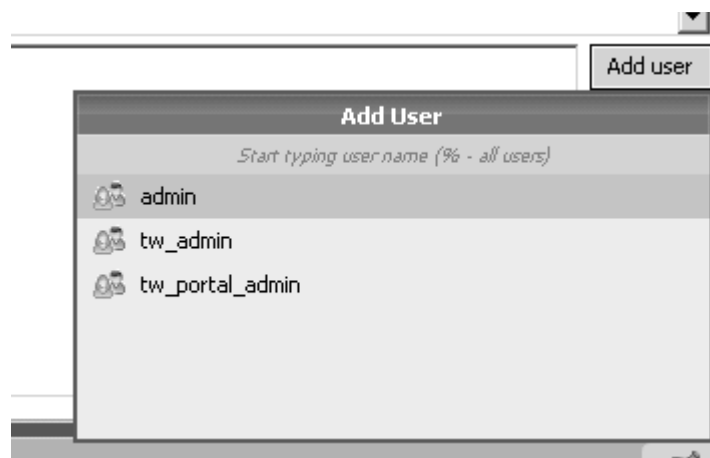


- ___ 14. Click **Finish**. The Participant Group editor opens.

___ 15. In the **Members** section, click **Add user**.

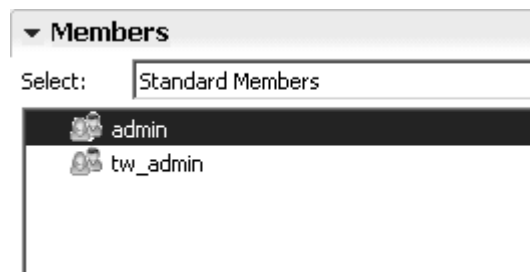


___ 16. Although it does not appear so, start typing **adm**. IBM Process Designer uses look ahead searching to fetch the list of users whose ID contains the matching sequence.



___ 17. Select the **admin** user.

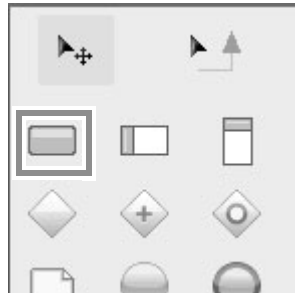
___ 18. Click **Add user** again to add the **tw_admin** user to the group. Your participant group now contains the following members:



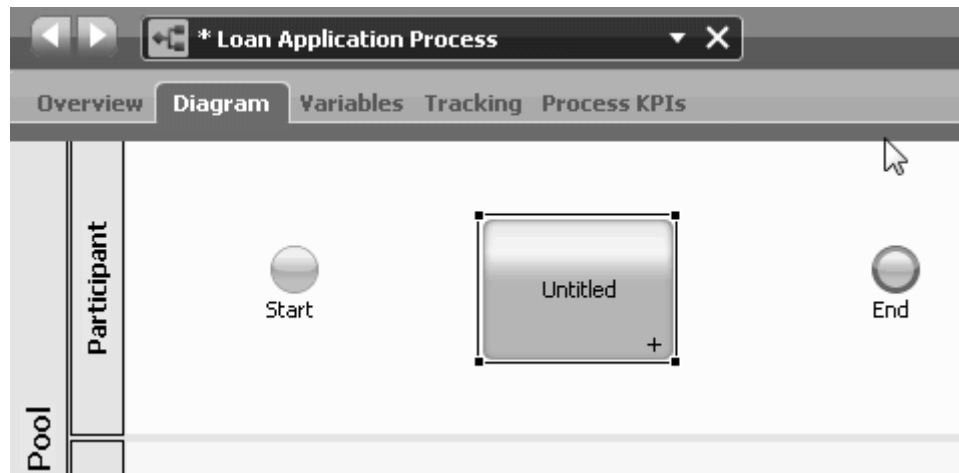
___ 19. Click **Save**.

___ 20. Close the **Admins** participant group.

___ 21. The next task in the sequence of building a process model is to add an **Activity** to the lane. An **Activity** represents a logical unit of work that can be completed by a human or a system during process execution. To add an activity in the lane, select an **Activity** element from the element palette in the right of the canvas.

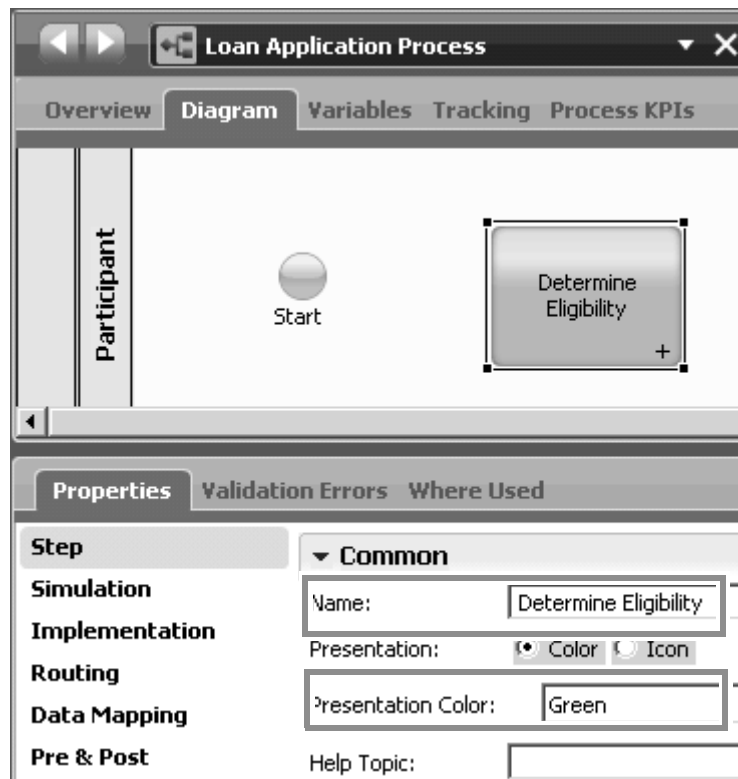


Place an activity on the canvas.



- ___ 22. Select the **Properties** view tab below the canvas. In the **Step** tab of the **Properties** view, you may set the name, color, implementation, and other properties.

Set the **Name** of the activity to **Determine Eligibility** and the color to **Green**.

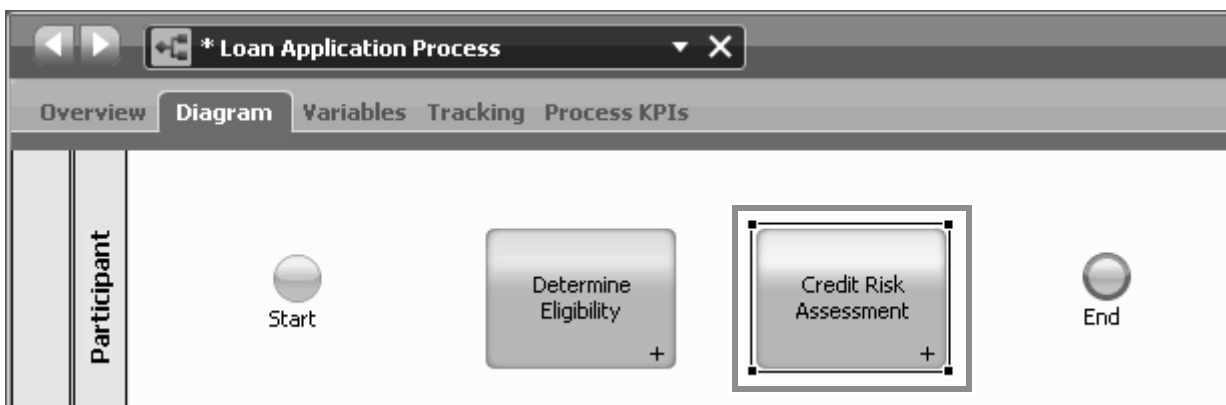


- ___ 23. Add a second activity to the canvas. Name the activity **Credit Risk Assessment** and set its color to **Purple**.



Note

The colors of an activity have no functional purpose.



- ___ 24. Select the **Determine Eligibility** activity, and examine the **Properties** view tab. Click the **Implementation** tab in the **Properties** view. The implementation of this activity is assigned as a **Default Human Service**.



Note

You can select any implementation from the existing implementations by clicking **Select** button. You can also create a **New** implementation from the same window by clicking **New** button.

There are different types of implementation as well. If you select the drop-down, the types of implementations are: **services**, **nested processes**, **JavaScript**, or an **external activity**. Do not choose an implementation yet.

___ 25. Add a decision gateway named **Is Application Eligible?** to the canvas.

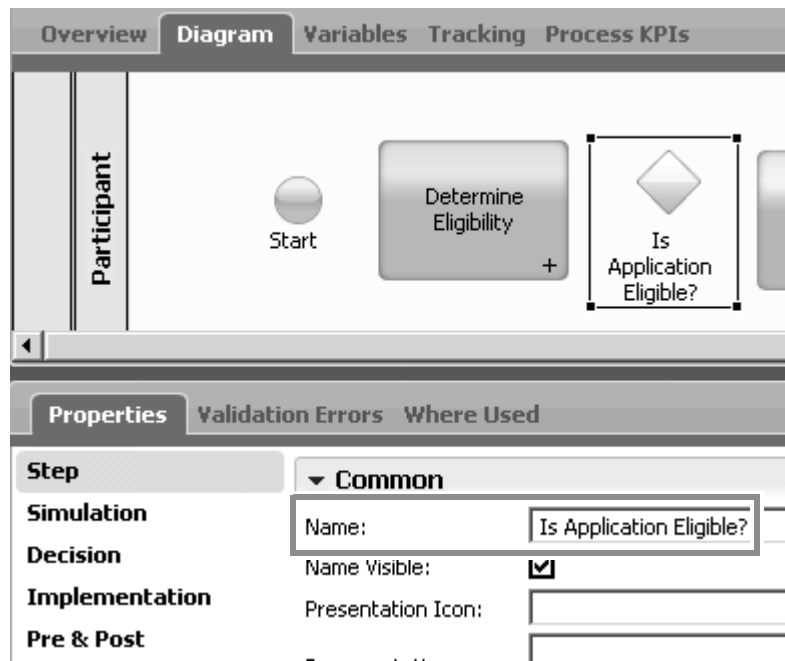
___ a. From the palette, select a decision gateway element.



___ b. Drop the decision gateway between the two activities.

___ c. Select the **Step** tab in the **Properties** view.

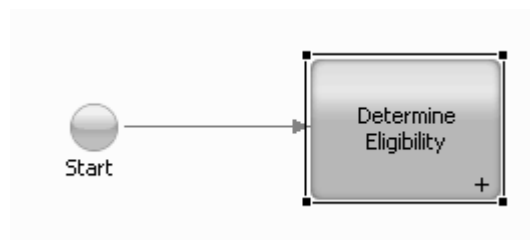
___ d. Set the name of the decision gateway to **Is Application Eligible?**



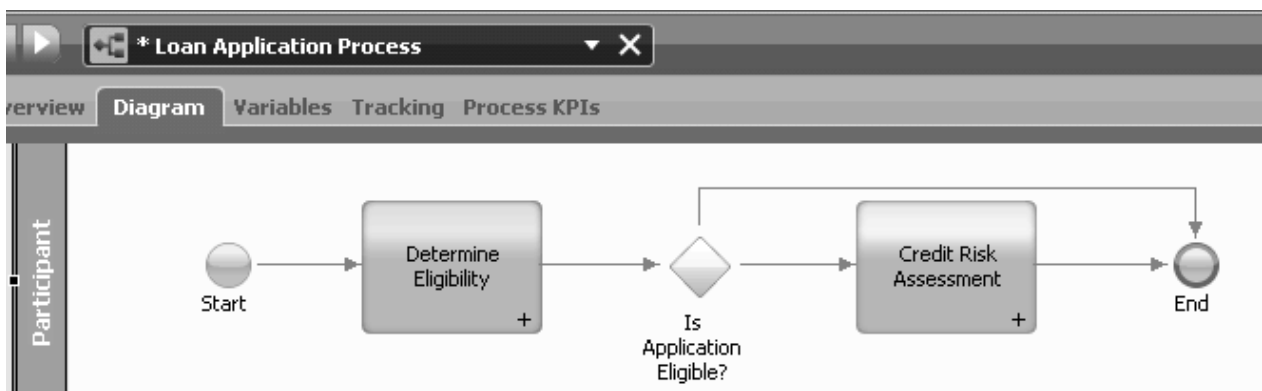
- ___ 26. Once you lay down all the flow objects, you need to connect them using the **Sequence Flow** element from the palette.



- ___ 27. To connect the elements, select the **Sequence Flow** element from the palette. Click once on one flow object, drag the cursor to the next flow object, and then click once to connect. The following diagram shows the sequence flow from the **Start** to **Determine Eligibility** activity.



- ___ 28. Complete the remaining connections:
- ___ a. Connect **Determine Eligibility** to the decision gateway.
 - ___ b. Connect the decision gateway to **Credit Risk Assessment**.
 - ___ c. Connect the decision gateway to the end element.
 - ___ d. Connect **Credit Risk Assessment** to the end element.



Information

If you need room, use the **Selector** tool to drag elements around in the canvas.

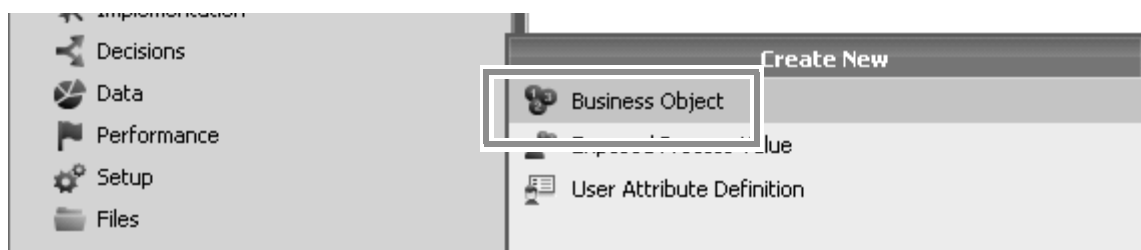
___ 29. Click **Save**.

Part 3: Explore data objects to support a BPD in IBM Process Designer

A data or business object (BO) represents application data. Business objects are used to exchange data between components of a business process.

In this part of the lab exercise, you add business objects to the toolkit. These business objects support the business process diagram. You also explore the properties of these business objects.

- ___ 1. Click the **Process Center** icon to return to the Process Center perspective.
- ___ 2. Click the **Toolkits** tab.
- ___ 3. Click the **Open in Designer** link next to the **Loan Application Toolkit**.
- ___ 4. Select **Data**. Click the plus (+) sign next to **Data**.
- ___ 5. Click **Business Object**.



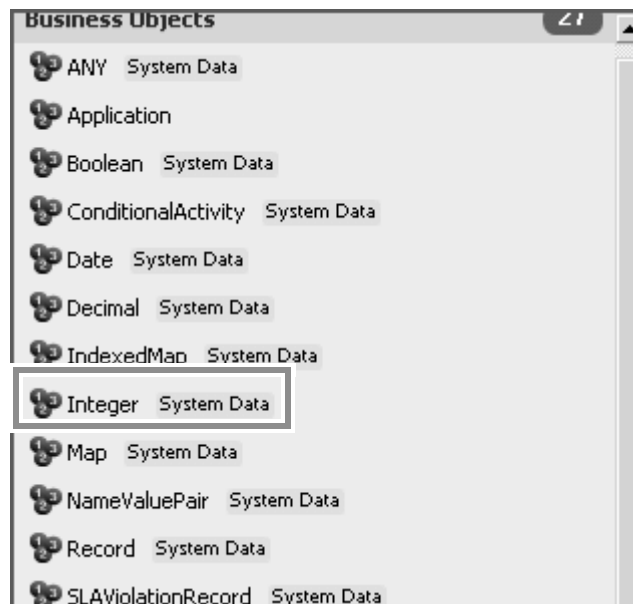
- ___ 6. Name the business object **Application**.
- ___ 7. Click **Finish**.
- ___ 8. Add the parameters for the business object.

The business object captures the data parameters for the loan application.

- ___ a. In the **Parameters** section, click the **Add** button. The default name of the parameter is `Untitled1` and its type is `String`.



- ___ b. Set the **Name** of the parameter to `accountNumber`. The variable type is still a **String**. The parameter name and value are changed in the parameter list.
- ___ c. Click **Add** again to add another parameter.
- ___ d. Name the parameter `creditScore`.
- ___ e. Next to the **Variable Type**, click the **Select** button.
- ___ f. Select `Integer` from the list.



- ___ g. In the same fashion that you added the previous two parameters, add the following parameters:
- `isEligible` (**Boolean**)
 - `applicationDate` (**Date**)
 - `companyName` (**String**)

- customerCountry (**String**)
- requestedAmount (**Decimal**)
- creditRisk (**String**)
- applicationDecision (**Boolean**)

Parameters

- ☐ accountNumber (String)
- ☐ creditScore (Integer)
- ☐ isEligible (Boolean)
- ☐ applicationDate (Date)
- ☐ companyName (String)
- ☐ customerCountry (String)
- ☐ requestedAmount (Decimal)
- ☐ creditRisk (String)
- ☒ applicationDecision (Boolean)

___ h. Save your work.



Note

The **Behavior** section indicates if the business object is simple or complex.

Behavior

Definition Type: Complex Structure Type

Simple Type: This option can create a business object using an existing type such as String, Decimal, or Integer. The new business object becomes the wrapper around basic types like String, Decimal, and Integer. The advantage here is you can further constrain the new business object based on pattern, length, or value. Refer to the Information Center for more information about the constraints which can be set on these data types.

http://publib.boulder.ibm.com/infocenter/dmndhelp/v7r5mx/topic/com.ibm.wbpm.wle.editor.doc/modeling/topic/creating_custom_var_types.html

Complex Structure Type: This option can create a complex business object by specifying the parameters for the structure and the type of each parameter.

Complex types are the default. In IBM Integration Designer, this property is implicit.

To define the data parameter as an array, toggle the **Is List** button.

Parameter Properties

Name: positionType

Is List: ☐

Variable Type: String System Data Select... New

Documentation: new or existing



Information

There are three **Length Restriction** types you can define as a constraint for a **String** simple type business object:

- **None (Unlimited Length)** does not have any fixed length for the string data.
- **Fixed (Always same length)** sets the length of the field to a uniform amount.
- **Range (Min to Max)** defines the length in terms of an acceptable range of values, from the minimum to the maximum permissible length. You can enter this range in the **Min Length** and **Max Length** field.

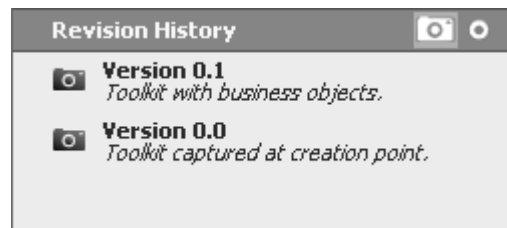
Similarly, you can define the constraint for **Integer** type business object. The constraints that can be defined for **Integer** type business objects are **minimum**, **maximum**, **precision**, **regular expression**.

___ 9. Click the cross button to close the **Application** business object editor.

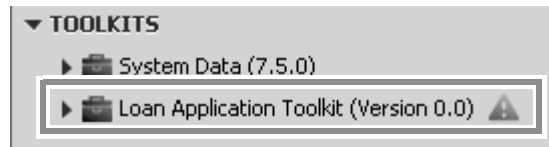


___ 10. Take a snapshot of the toolkit to apply it to the process app.

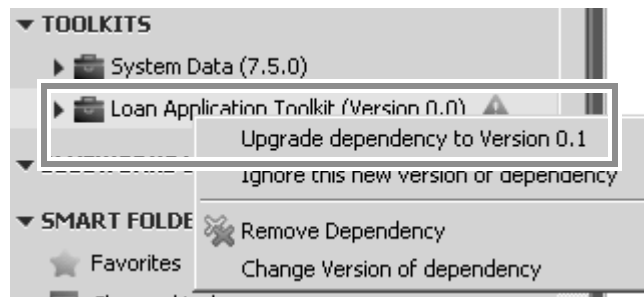
- ___ a. Click the **Snapshot** icon.
- ___ b. Name the snapshot **Version 0.1**
- ___ c. Set the description to **Toolkit with business objects**.
- ___ d. Click OK.



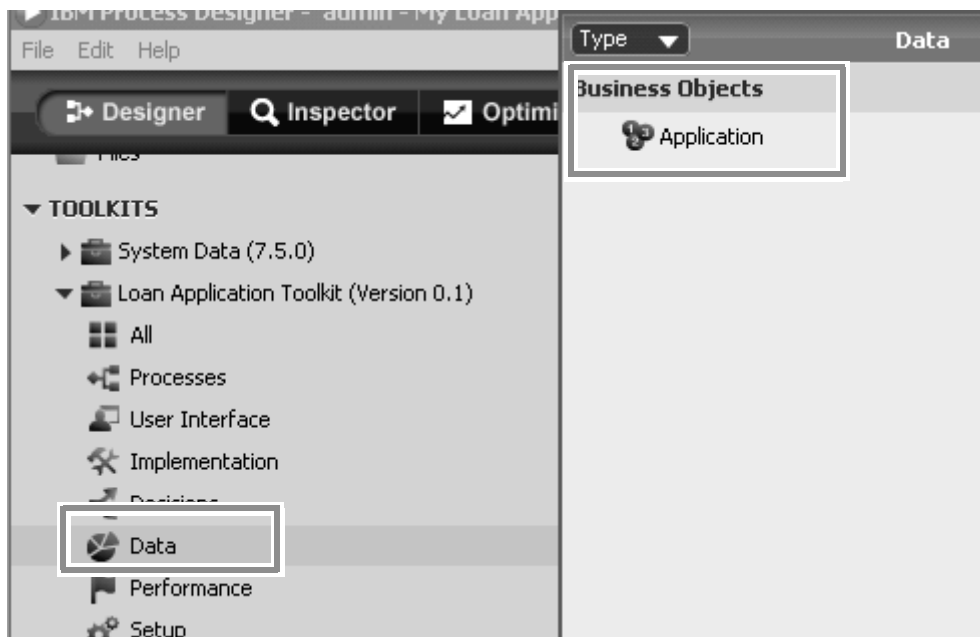
- ___ 11. Apply the new toolkit to the process app.
 - ___ a. Click the **Process Center** icon to return to the Process Center perspective.
 - ___ b. Click the **Process Apps** tab.
 - ___ c. Click the **Open in Designer** link next to **My Loan Application (LAP754)**
 - ___ d. The **Loan Application Toolkit** has been marked with a warning. This warning indicates that a new snapshot is available from the old version.



- ___ e. Right-click the toolkit and select **Upgrade dependency to Version 0.1**.

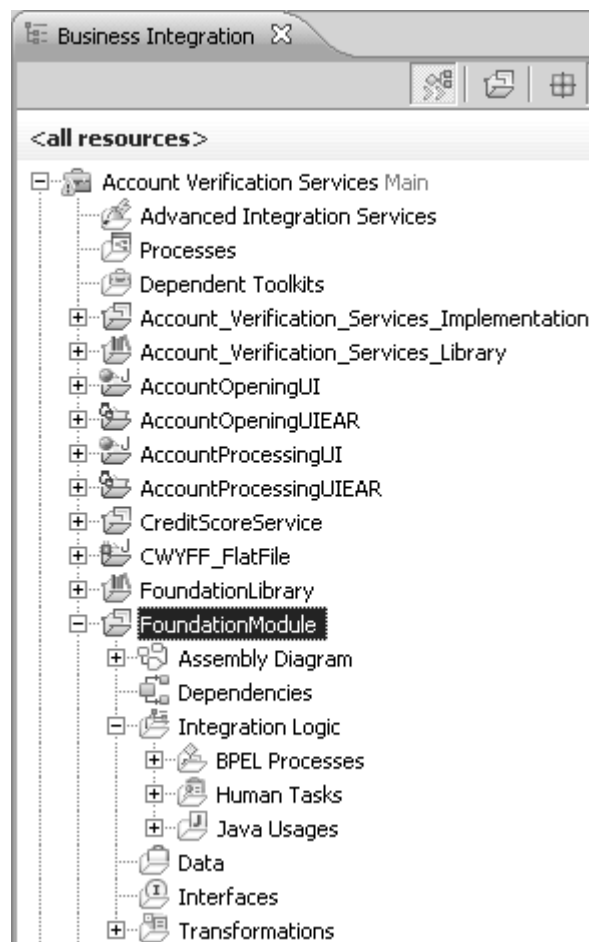


- ___ f. Once the toolkit is upgraded, the process app is using the latest version.
- ___ g. Expand the toolkit.
- ___ h. Click **Data**. The **Application** business object is displayed.



Part 4: Compare process apps and toolkits in IBM Process Designer to modules in IBM Integration Designer

- ___ 1. Open the Exercise 3 workspace.
 - ___ a. On your desktop, open the folder labeled **Exercise Shortcuts**.
 - ___ b. Double-click the shortcut labeled **Exercise 3**.
 - ___ c. Close the **Getting Started** tab.
- ___ 2. Compare process apps in IBM Process Designer to modules in IBM Integration Designer
 - ___ a. In the Business Integration perspective, expand **Account Verification Services > FoundationModule**.



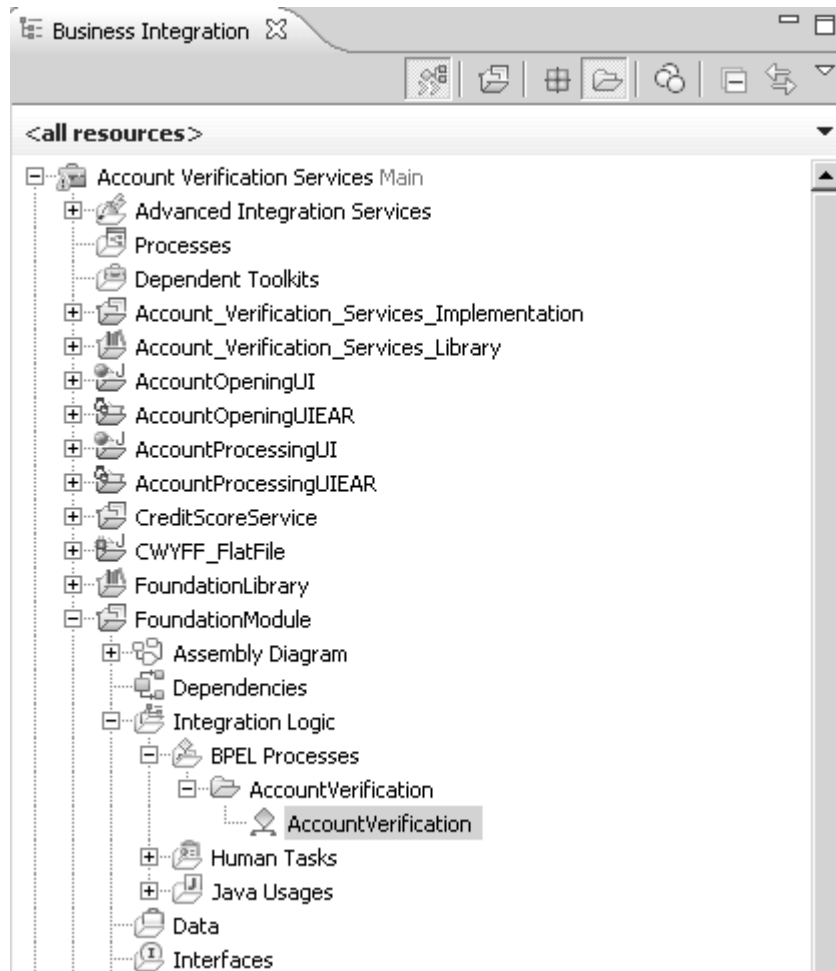
- **Modules** in IBM Integration Designer provide the services for your application. A module is a unit of deployment that determines which artifacts are packaged together. A **module** may also contain the implementations and interfaces referenced by its components, imports and exports, or data objects. These artifacts may be placed in other projects, such as a library.
- **Process apps** are analogous to **modules** in IBM Integration Designer. Like modules, process application are containers for the implementations of the process models, data, and interfaces.

Part 5: Comparing Business process definition in IBM Process Designer to BPEL process in IBM Integration Designer

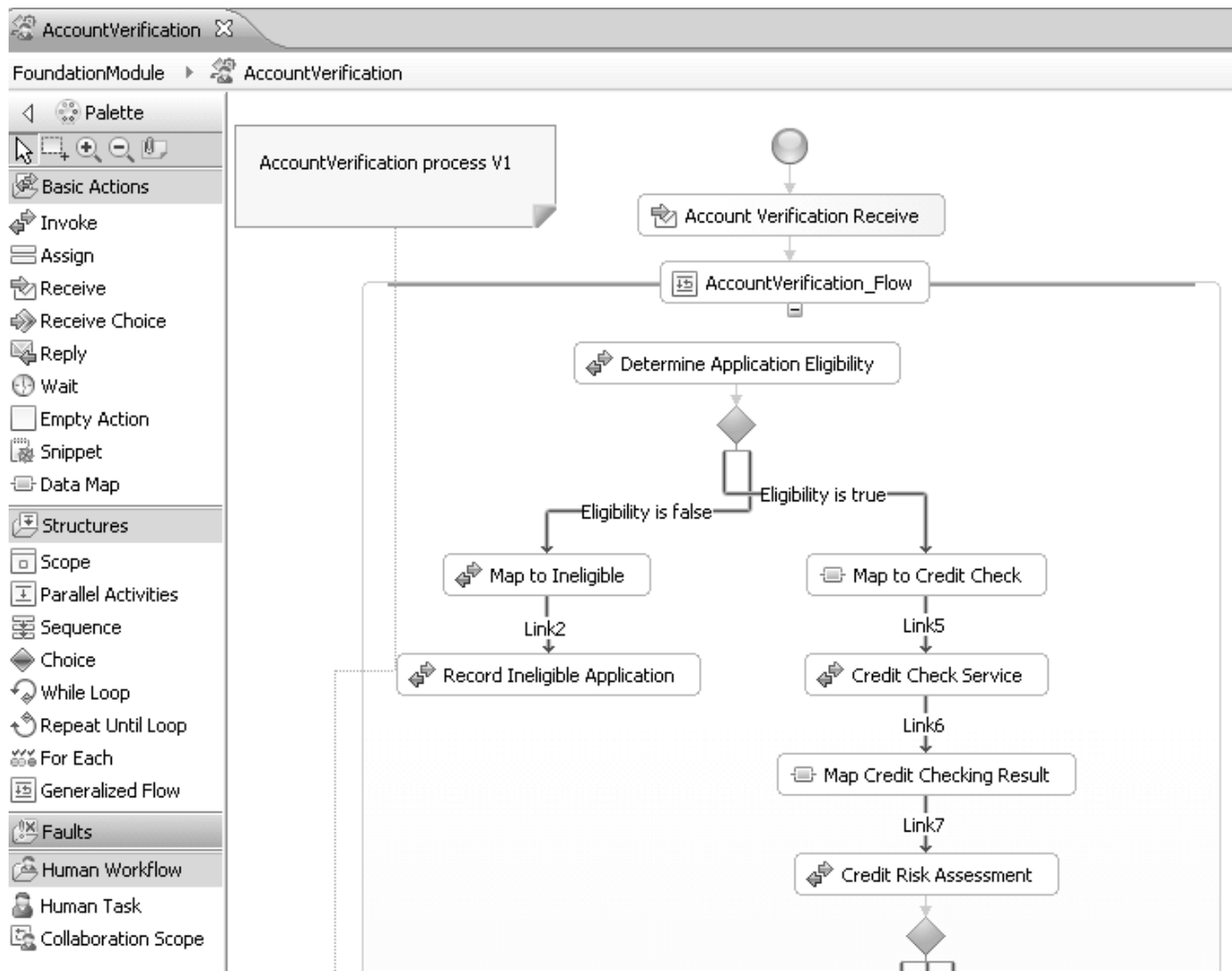
The BPEL process in IBM Integration Designer is a visual representation of actual business process. Similarly, a Business Process Definition (BPD) in IBM Process Designer is a visual representation of an actual business process. The basic functionality these artifacts

offer is to capture a sequence of activities which are used to build a business model workflow.

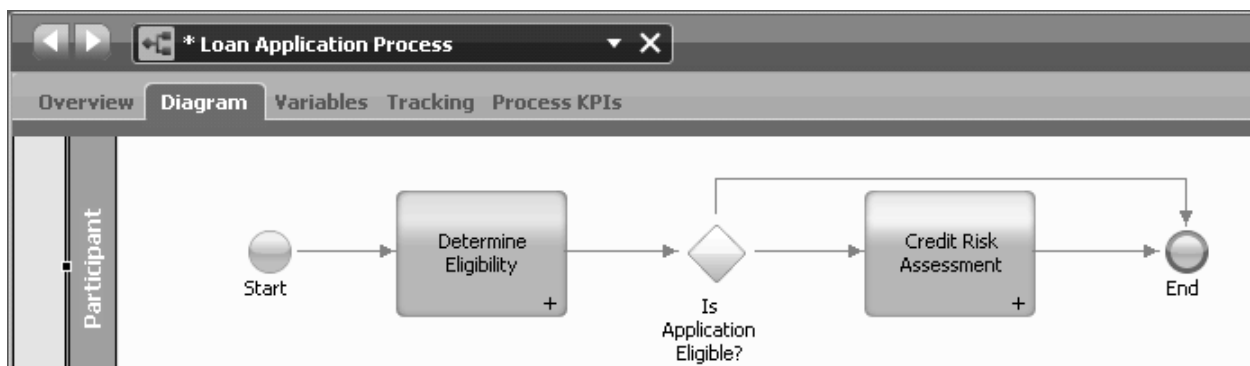
- ___ 1. Explore the business process diagram editor.
 - ___ a. In the Business Integration view, expand **Account Verification Services > FoundationModule > Integration Logic > BPEL Processes > AccountVerification**.
 - ___ b. Double-click **AccountVerification** to open the process editor.



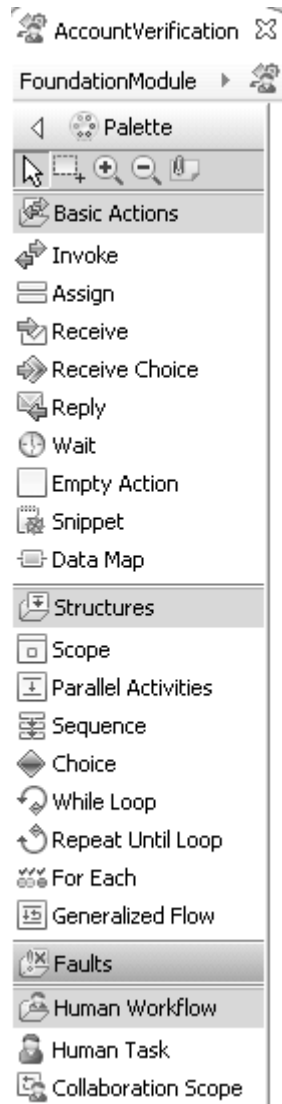
- ___ c. Examine the **Business process editor** in IBM Integration Designer.



It is a graphical programming environment that you use to visually create and manipulate business processes. It has been designed such that the construction of the business processes can be made simple. This editor to create a business process model in IBM Integration Designer is similar to the Designer view in IBM Process Designer. You have explored the Designer in a previous section.



- ___ 2. Explore the BPEL editor palette.
- ___ a. To design a BPEL process in IBM Integration Designer, you use the objects from the palette. The palette contains the objects which you drag onto the canvas in order to build your process.

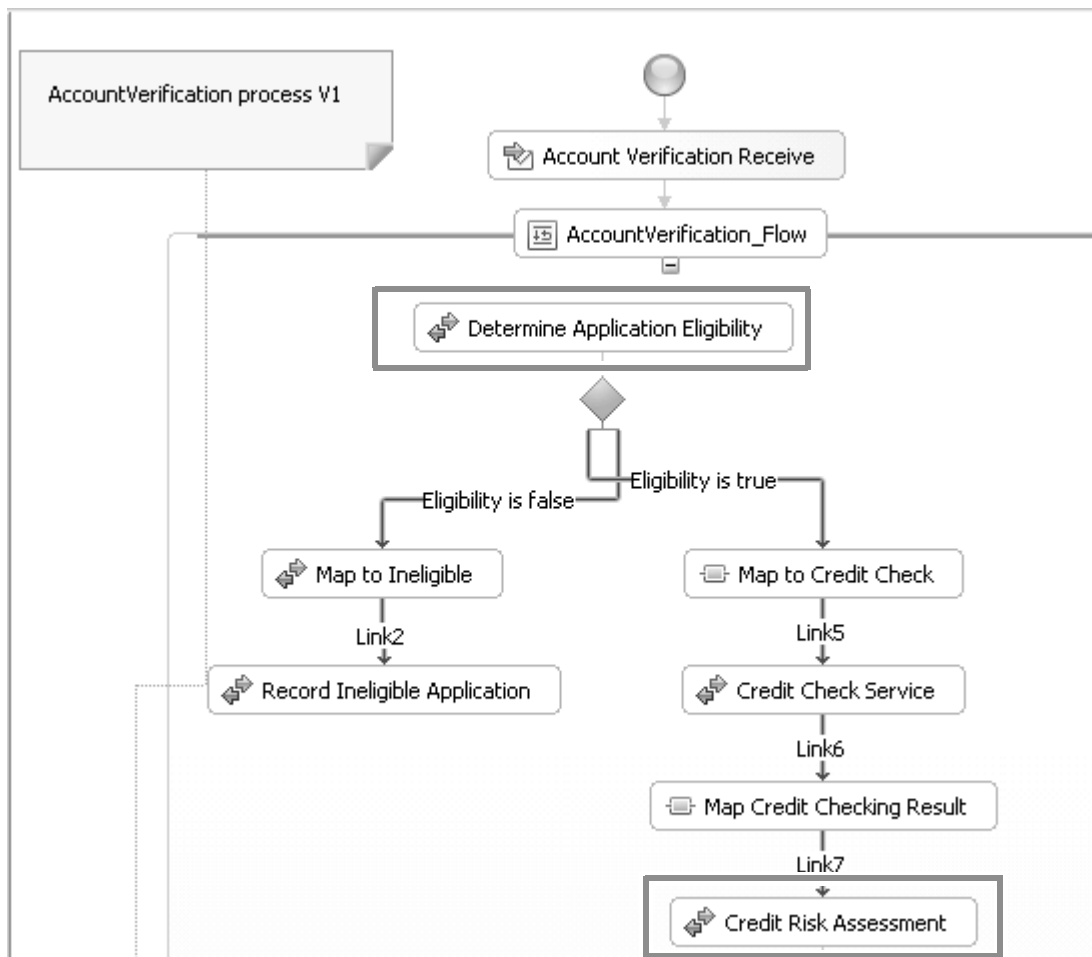


Similarly, the activities and decision gateways required to develop a BPD in IBM Process Designer are in an Element Palette. You have already used the main objects from this palette:

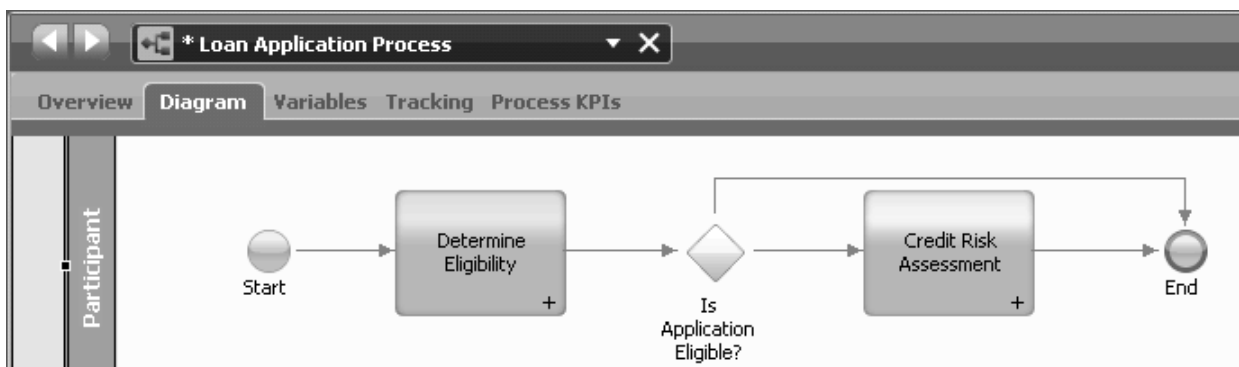


___ 3. Explore activities

- ___ a. In IBM Integration Designer, any BPEL process is the combination of various activities which operate with each other to implement the larger business goal. This goal is represented by the process which contains the assets. Some activities are **Determine Application Eligibility, Map to Ineligible, Map to Credit Check**, and **Credit Risk Assessment** are activities in the BPEL process editor.



- ___ b. Similarly, in IBM Process Designer, a BPD is composed of many activities. An activity in a BPD represents a logical unit of work that can be completed by a human or a system during process execution. In the Loan Application BPD, you created activities like **Determine Eligibility** and **Credit Risk Assessment**.



___ 4. Explore input and output data

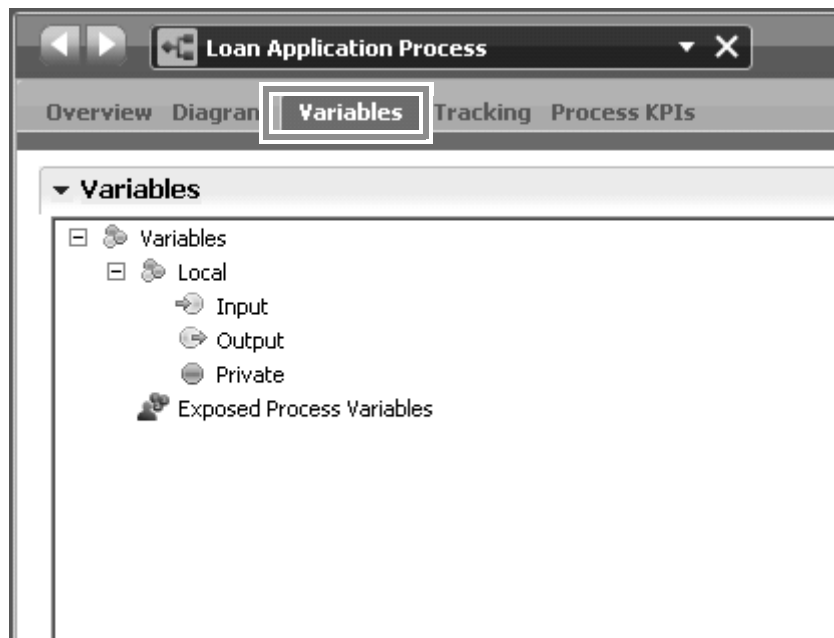
- ___ a. In IBM Integration Designer, variables store the data which is exchanged between the activities in a business process. Examine the input data of the **AccountVerification** BPEL process.

- ___ b. Click the **Account Verification Receive** activity in the BPEL editor. Click the **Properties** view of the BPEL process.
- ___ c. Click the **Details** tab in the **Properties** view.

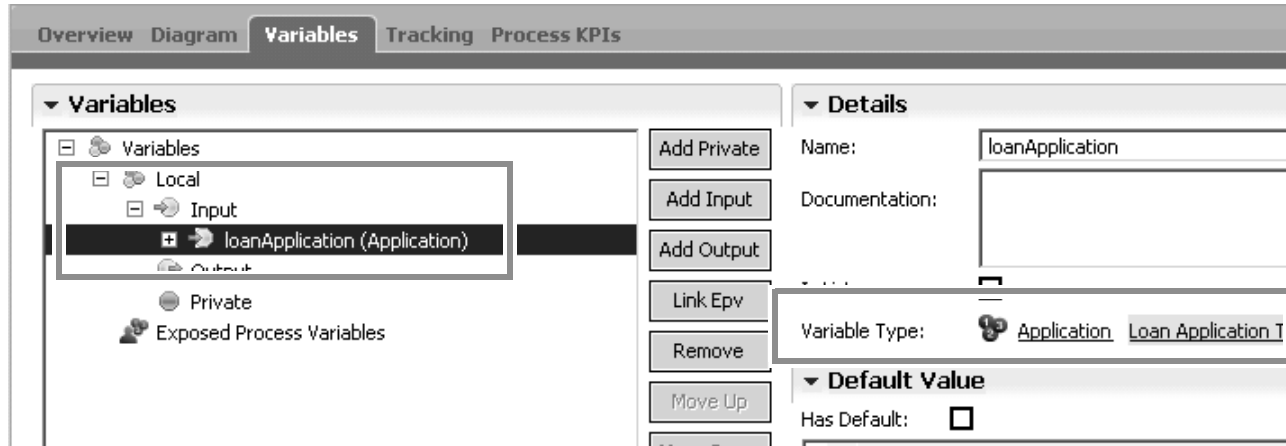
Input data of the BPEL process is a **CustomerApplication** type of business object. The data received is stored in a **CustomerApplicationVariable**

Receive - Account Verification Receive			
Description	Partner:*	AccountVerification	Browse...
Details	Interface:*	AccountVerification	
Server	Operation:*	InputCriterion	
Authorization	<input checked="" type="checkbox"/> Use data type variables mapping		
Exit Condition			
Correlation			
Environment			
Event Monitor			
Global Event Settings			
Inputs			
	Name	Type	Store into Variable
	Input	CustomerApplication	CustomerApplicationVariable

- ___ 5. Add variables to the **Loan Application Process**.
 - ___ a. Switch to IBM Process Designer.
 - ___ b. If it is not open already, open the **My Loan Application** process app in the Designer view. It can be found in the Process Center perspective, on the **Process Apps** tab.
 - ___ c. Click **Processes** and double-click **Loan Application Process**. Just as a BPEL uses input variables, so does each BPD you create. These input variables are declared so business data may be captured and passed from step to step.
 - ___ d. Click the **Variables** tab in the Designer to view the input and output data objects of this BPD process.



- ___ e. Click **Add Input**.
- ___ f. Name the variable `loanApplication`.
- ___ g. Next to the **Variable Type** field, click **Select**.
- ___ h. Select `Application`.

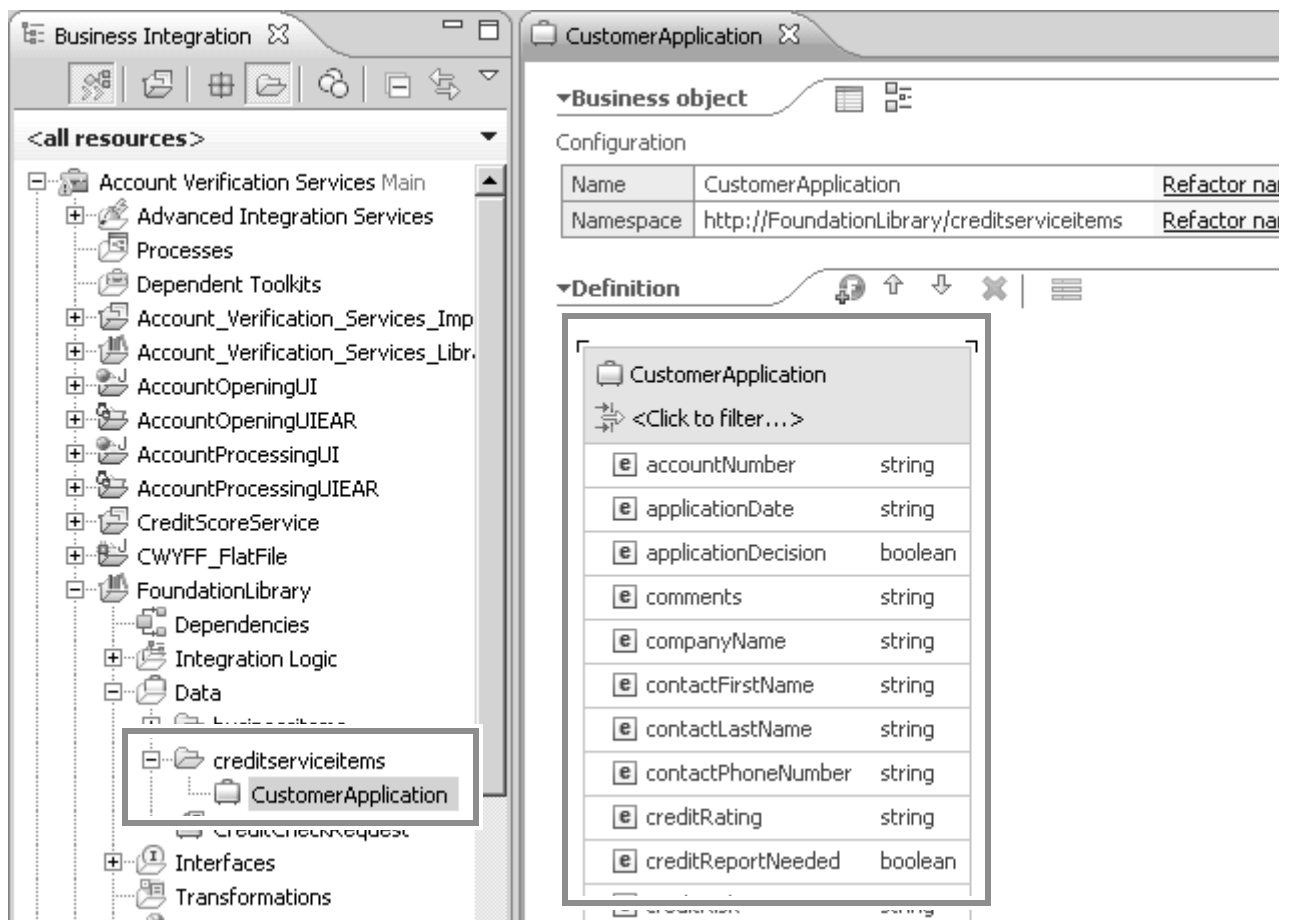


- ___ 6. Save your changes.

Part 6: Compare data objects in IBM Process Designer business objects in IBM Integration Designer.

- ___ 1. Switch to IBM Integration Designer.

- ___ 2. Compare business objects.
- ___ a. In IBM Integration Designer, data is defined by business objects. A data object, or business object (BO), captures application data. Business objects are used to exchange data between components of a business process.
- In the Business Integration view, expand **Account Verification Services > FoundationLibrary > Data > creditserviceitems**.
- ___ b. Double-click **CustomerApplication** to open the business object in the editor.



- ___ c. Business objects carry data in IBM Process Designer just as they do in IBM Integration Designer.
- ___ 3. Close IBM Integration Designer.
- ___ 4. Close IBM Process Designer.
- ___ 5. On the Windows desktop, double-click the shortcut labeled **Stop the Process Center server**.

End of exercise

Exercise 5. Implementing business process activities

Estimated time

02:00

What this exercise is about

In IBM Process Designer, you create business objects which carry data for the entire business process flow. You define input, output, and private variables for each of the activities in the business process diagram. These variables define the type of data flowing in and out of the activity.

In IBM Process Designer, you can create many types of services, such as human services, decision services, or integration services. Depending on the type of service you choose, you have tools and components to build the service. The server script component is available for all types of services. The server script component uses JavaScript language, which is useful for parsing through variables and executing programmatic commands.

Business rules are an expression of business policy in a form that is understandable to business users. These rules can be executed by an internal rule engine. Business rules formalize a business policy into a series of “if-then” statements. In IBM Process Designer, business rules are included in a business process definition (BPD) by adding a decision service activity to the process. There are three types of components in a decision service: BAL rules, JRules decision services, or a decision table. Business Action Language (BAL) rules are “if-then” types of statements, written in a natural language format. JRules decision services integrate with IBM WebSphere ILOG JRules. Decision tables contain complex rule conditions. Each row in the rule table represents a Boolean condition which evaluates to true or false at run time.

What you should be able to do

After completing this exercise, you should be able to:

- Create simple activity implementations in IBM Process Designer

- Create a simple business rule implementation in IBM Process Designer
- Create a coach component in IBM Process Designer
- Integrate a process in IBM Integration Designer with a process application using a coach component

Introduction

In this exercise, you create a general system service with a JavaScript implementation, decision service with the Business Activity Language (BAL) implementation, and a simple BPEL process in IBM Integration Designer. You integrate the BPEL process with the BPD. Finally, you test the integration using Integration Test Client in IBM Integration Designer and Process Portal in IBM Process Designer.

Requirements

Completing the exercises for this course requires a VMware image lab environment that includes the exercise support files, IBM Integration Designer, and the IBM Process Center Server test environment.

Instructor exercise overview

This exercise continues from the previous exercise. Previously, students created a simple business process diagram with two activities and a decision gateway. In this exercise, the students build implementations for the activities. The implementations are simple, and are only intended to demonstrate the procedure for building implementations, and for comparing the process to similar implementations in IBM Integration Designer.

In the second part of the exercise, students build a human service implementation (which is similar to a human task in IBM Integration Designer). That implementation is then built in to a business process in IBM Integration Designer, and executed from the IBM Integration Designer environment. The purpose of this part of the exercise is to demonstrate how assets built in IBM Process Designer may be used and executed in IBM Integration Designer. Students learn how assets are shared from different development environments through IBM Process Center.

Exercise instructions

Part 1: Create simple activity implementations in IBM Process Designer

In this portion of the exercise, you create the general system service implementation for the **Determine Eligibility** activity. This service is implemented using JavaScript. You create an input and output variable to capture data flowing in to and out from this service.

Start IBM Process Designer

- ___ 1. On your Windows desktop in the VMware image, select the shortcut titled: **Start the Process Center server**. Double-click or press **Enter** to launch the shortcut.

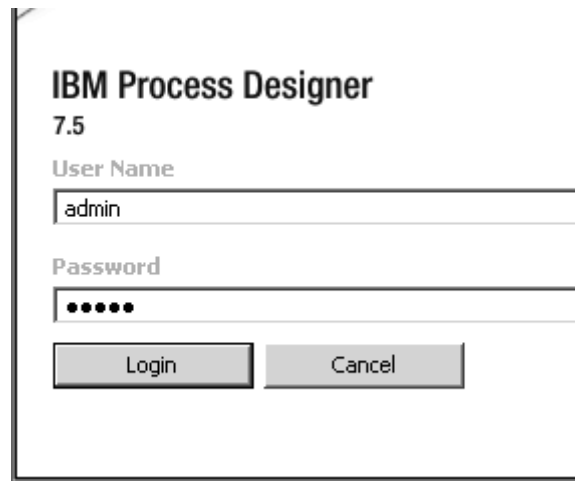


Once you do, a DOS command window appear, and the IBM Process Center server instance start. IBM Process Center is an application running in its own profile of WebSphere Application Server. That profile is connected to a DB2 repository where IBM Process Center stores its BPD artifacts.

- ___ 2. It takes several minutes for IBM Process Center to start. Once it has started, the DOS command window disappear without notice or warning.
- ___ 3. Once IBM Process Center has started, you may start IBM Process Designer and log in to the IBM Process Center repository.
 - ___ a. On the Windows desktop of your VMware image, locate the icon labeled **IBM Process Designer 7.5**



- ___ b. Double-click the icon or press **Enter** to launch IBM Process Designer.
- ___ c. As the splash screen for IBM Process Designer begins to load, you are prompted to enter a user name and password in order to connect to the IBM Process Center repository. Enter **admin** for the user name, and **admin** as the password.



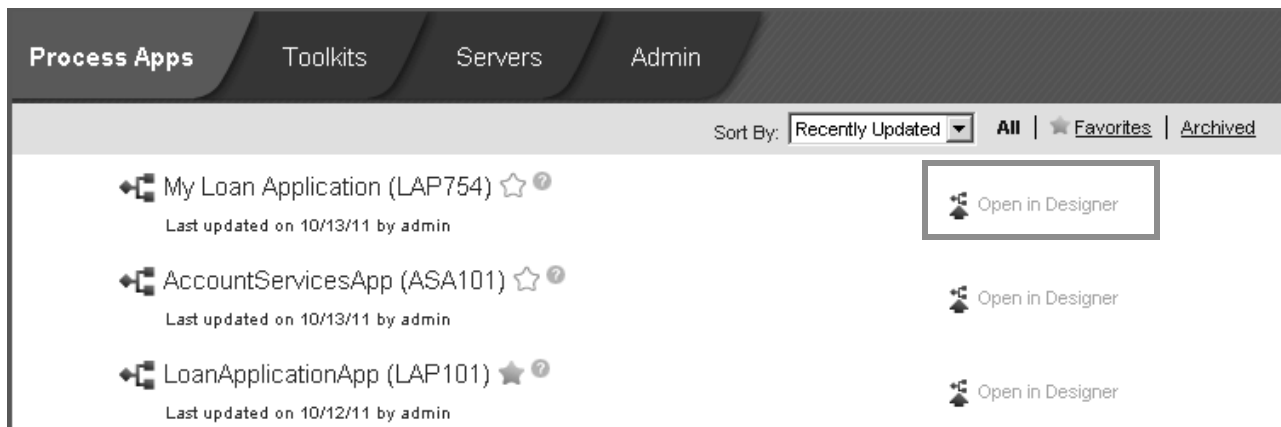
- ___ d. Select **Login**. After a few moments, IBM Process Designer starts.

Create a general system service

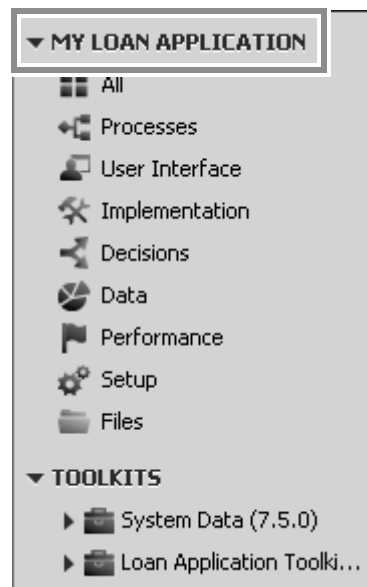
- ___ 1. Switch to the Process Center perspective, if it is not already displayed.



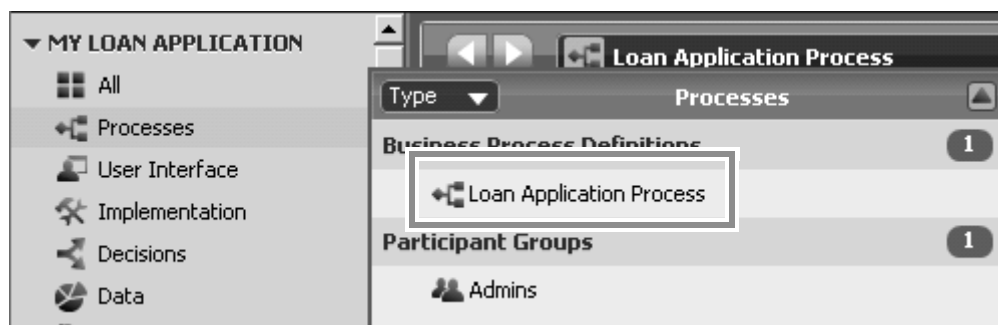
- ___ 2. Click **Open in Designer** next to **My Loan Application (LAP754)**.



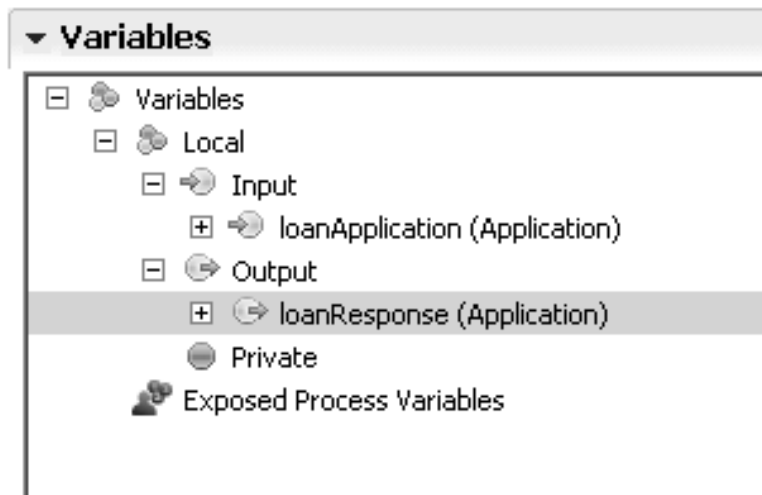
- ___ 3. Open the Loan Application Process, if it is not already open.
___ a. Expand **MY LOAN APPLICATION**, if it is not already.



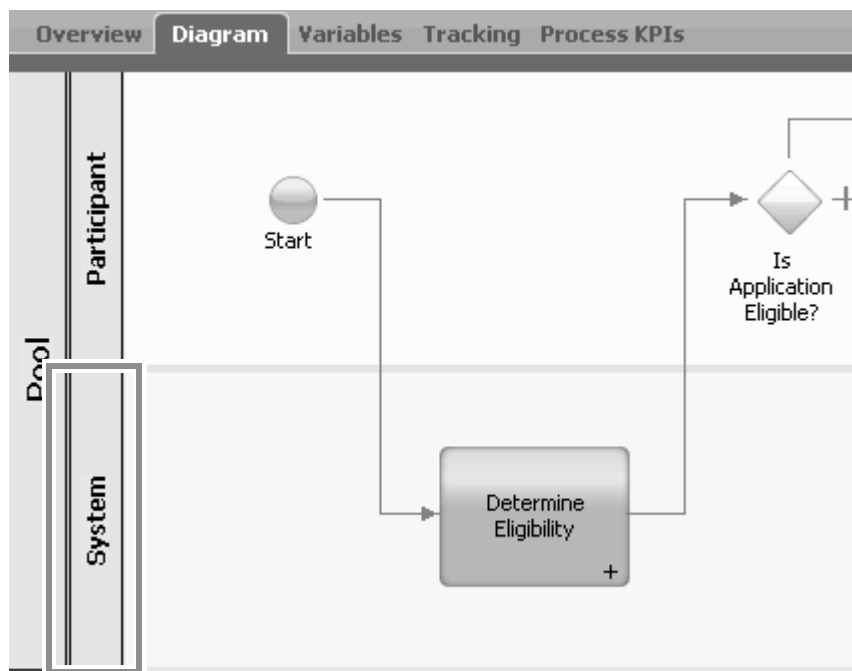
- ___ b. Click **Processes**, then double-click **Loan Application Process** to open the BPD in Designer.



- ___ 4. Click the **Variables** tab for the **Loan Application Process**.
- ___ 5. Click **Add Output**.
- ___ 6. Set the **Name** of the output variable to `loanResponse`.
- ___ 7. Click the **Select** button next to **Variable Type**. Click **Application**.



- ___ 8. Save your work.
- ___ 9. Click the **Diagram** tab.
- ___ 10. Select the **Determine Eligibility** activity. The implementation for this activity needs to be automated; that is to say, handled by the system. Drag the activity in to the **System** lane.

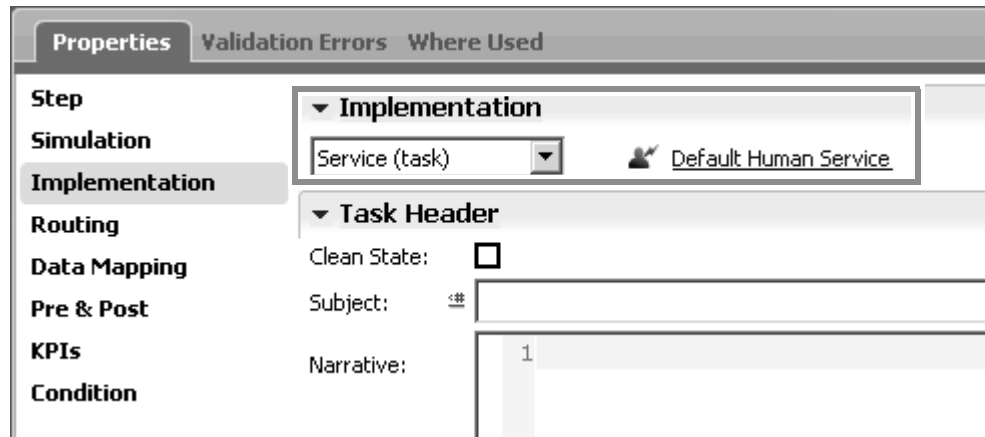


Note

There is no functional purpose to placing activities in lanes. It is only a modeling design.

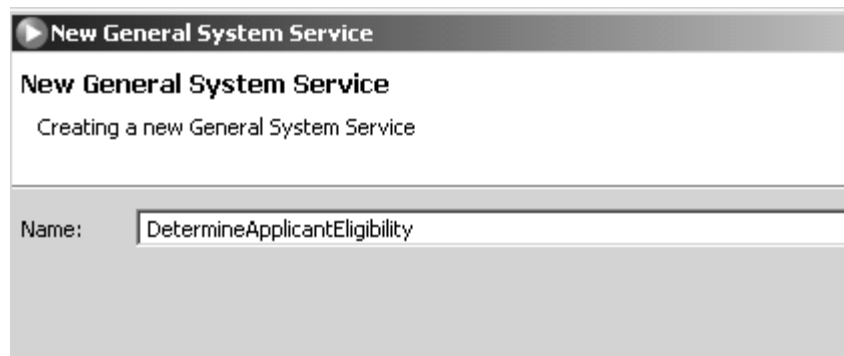
- ___ 11. With the **Determine Eligibility** activity still selected, click the **Properties** view tab.

- ___ 12. Click the **Implementation** option in the left pane of **Properties**. The current implementation for this activity is the Default Human Service.



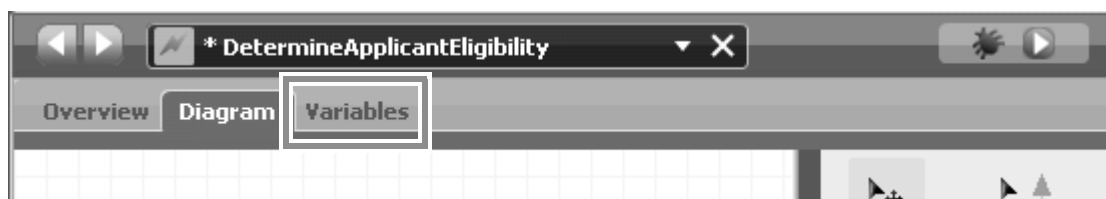
- ___ 13. To the right of the current implementation, in the **Implementation** section, click **New**.
- ___ 14. Create a general system service for **Determine Eligibility**.

In the **New General System Service** dialog, enter **DetermineApplicantEligibility** as the service name, and then click **Finish**.



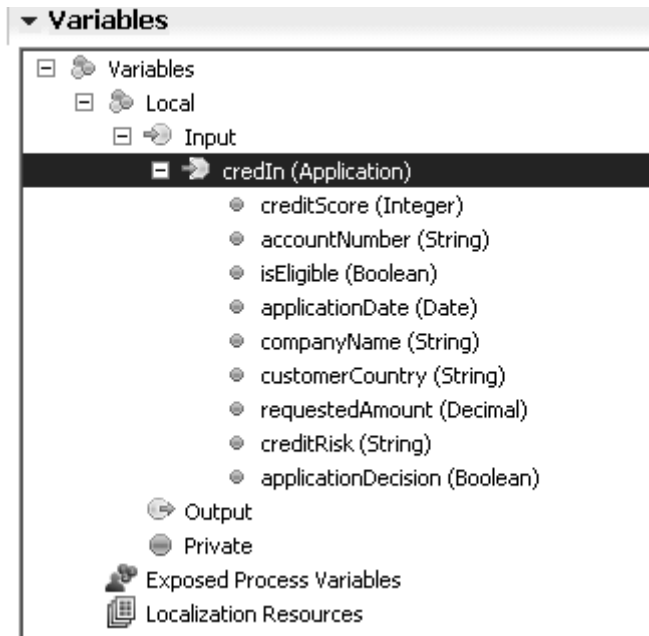
Add local variables to the system service

- ___ 1. In the **DetermineApplicantEligibility** service, select the **Variables** tab.

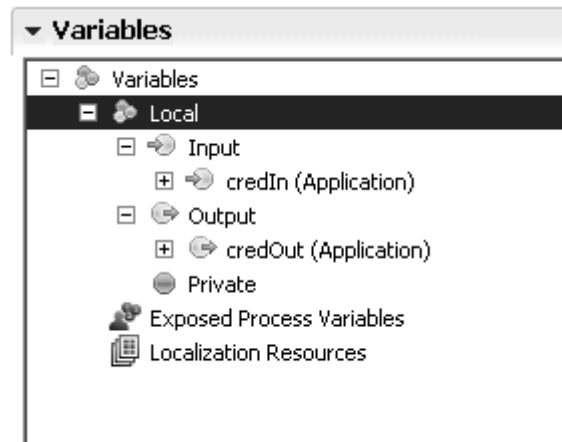


- ___ 2. Click **Add Input** to add an input variable. This variable receives the application as input for the credit check.
- ___ 3. Set the **Name** of the input variable to **credIn**.
- ___ 4. Next to the **Variable Type** field, click the **Select** button.

- ___ 5. Select **Application** from the list of variable types.



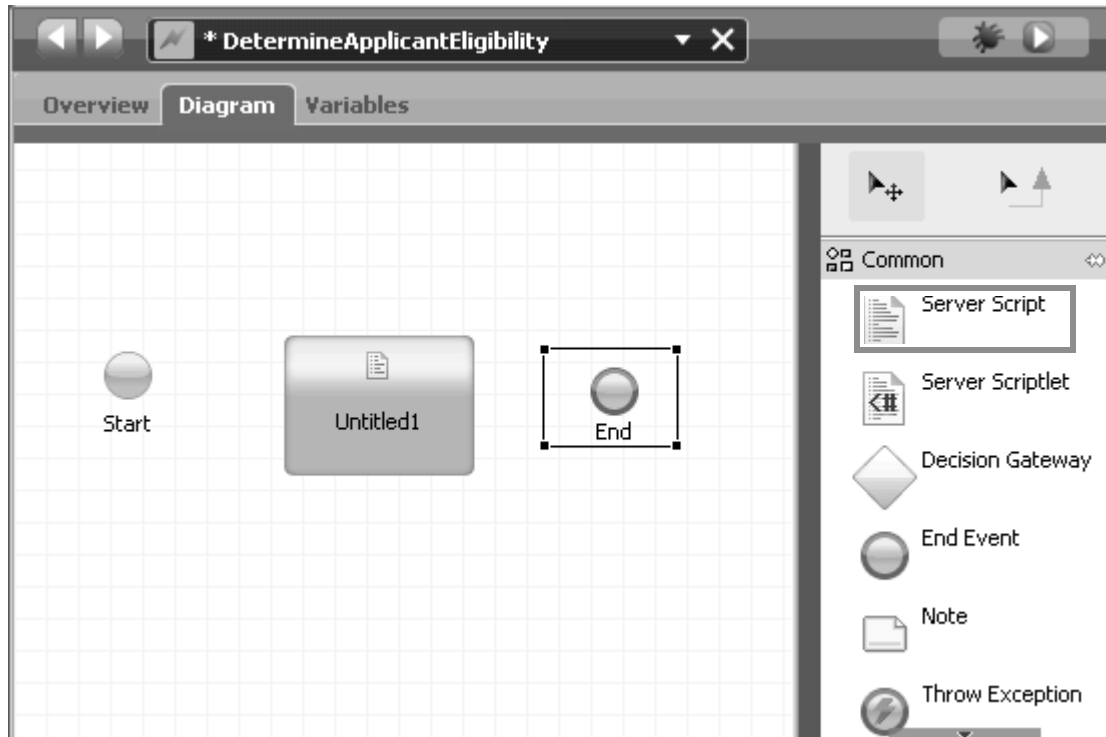
- ___ 6. Click **Add Output** to add an output variable. This variable is responsible for transferring data back to the process.
- ___ 7. Set the **Name** of the output variable to **credOut**.
- ___ 8. Next to the **Variable Type** field, click the **Select** button.
- ___ 9. Select **Application** from the list of variable types. Your variables resemble the following:



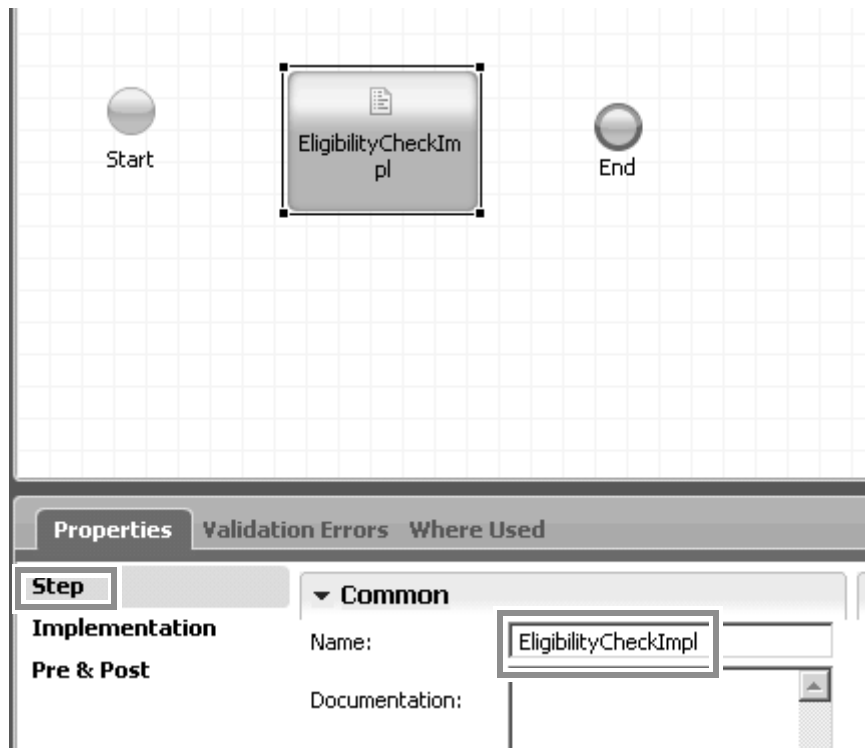
- ___ 10. Save your work.
- ___ 11. Click the **Diagram** tab to return to the design of the system service.

Add a JavaScript component to the implementation

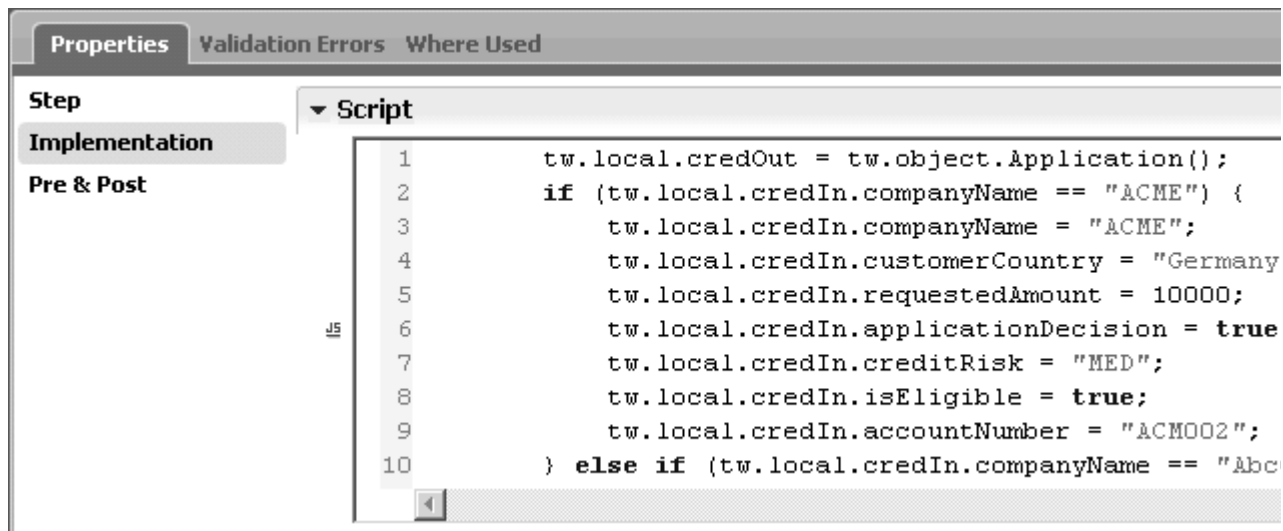
- ___ 1. Add a **Server Script** component `EligibilityCheckImpl` to the **DetermineApplicantEligibility** service.
 - ___ a. The **DetermineApplicantEligibility** service is currently open in the **Diagram** tab.
 - ___ b. Click **Server Script** in the component palette and drag it to the service diagram.



- ___ c. Select the `Untitled1` **Server Script** activity and click the **Properties** tab.
- ___ d. Select the **Step** option and set the **Name** of the activity to `EligibilityCheckImpl`.



- ___ e. In the **Properties** view, select the **Implementation** tab. The implementation of this activity is simply a script.
- ___ f. In Windows Explorer, navigate to **C:\Support Files\Ex 5** and open **EligibilityCheckImpl_snippet.txt** in a text editor.
- ___ g. Copy the contents of **EligibilityCheckImpl_snippet.txt** and paste it in the **Script** text area of **EligibilityCheckImpl**.



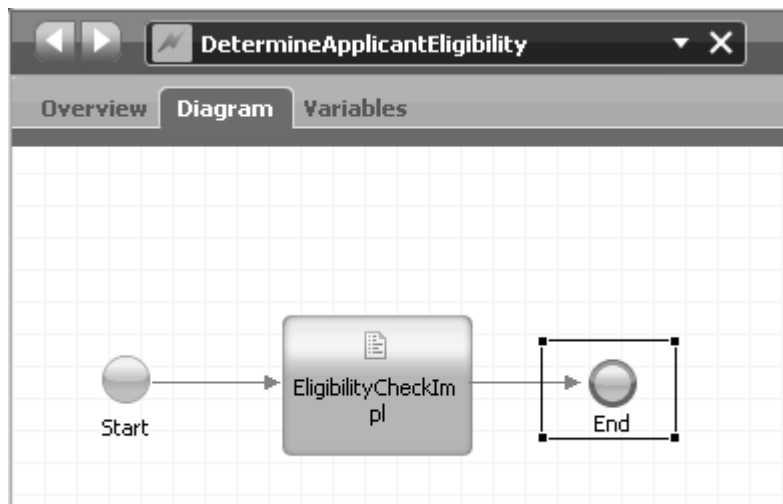
- ___ h. Alternatively, manually enter the following code:

```
tw.local.credOut = tw.object.Application();
if (tw.local.credIn.companyName == "ACME") {
    tw.local.credIn.companyName = "ACME";
    tw.local.credIn.customerCountry = "Germany";
    tw.local.credIn.requestedAmount = 10000;
    tw.local.credIn.creditRisk = "MED";
    tw.local.credIn.applicationDecision = true;
    tw.local.credIn.isEligible = true;
    tw.local.credIn.accountNumber = "ACM002";
} else if (tw.local.credIn.companyName == "AbcCo") {
    tw.local.credIn.companyName = "AbcCo";
    tw.local.credIn.customerCountry = "Spain";
    tw.local.credIn.requestedAmount = 20000;
    tw.local.credIn.creditRisk = "NOT EVALUATED";
    tw.local.credIn.applicationDecision = false;
    tw.local.credIn.isEligible = false;
    tw.local.credIn.accountNumber = "ABC001";
} else if (tw.local.credIn.companyName == "IBM") {
    tw.local.credIn.companyName = "IBM";
    tw.local.credIn.customerCountry = "USA";
    tw.local.credIn.requestedAmount = 30000;
    tw.local.credIn.creditRisk = "LOW";
    tw.local.credIn.applicationDecision = true;
    tw.local.credIn.isEligible = true;
    tw.local.credIn.accountNumber = "IBM007";
} else if (tw.local.credIn.companyName == "TestCo") {
    tw.local.credIn.companyName = "TestCo";
    tw.local.credIn.customerCountry = "USA";
    tw.local.credIn.requestedAmount = 50000;
    tw.local.credIn.creditRisk = "HIGH";
    tw.local.credIn.applicationDecision = false;
    tw.local.credIn.isEligible = true;
    tw.local.credIn.accountNumber = "TEST001";
}
tw.local.credOut = tw.local.credIn;
```

- ___ i. Select the **Sequence Flow** from the palette on the left.



- ___ j. Connect the **Start** activity to the **EligibilityCheckImpl** server script activity, and **EligibilityCheckImpl** to the **End** activity.



- ___ k. Save your work.
- ___ l. Close the **DetermineApplicantEligibility** implementation editor.

Part 2: Create a simple business rule implementation in IBM Process Designer

In this portion of the exercise, you create the BAL Rule type decision service **CreditRiskAssessment**. If the **creditScore** value is less than 4, then the **creditRisk** is **HIGH**. If the **creditScore** value is between 4 and 7, then the **creditRisk** is **MED** (short for medium). If the **creditScore** value is between 8 and 11, then the **creditRisk** is **LOW**.

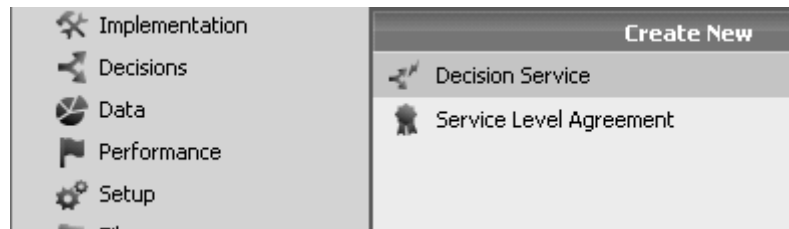
Create a decision service

- ___ 1. Open the **Loan Application Process** in the **My Loan Application** process app, if it is not already open.
- ___ 2. Drag the decision gateway and the **Credit Risk Assessment** activity in to the **System** lane. The implementation of this activity is also automated.
- ___ 3. Create a decision service called **CreditRiskAssessment**.
 - ___ a. In the Library panel on the left side of the Designer view, hover over the **Decisions** item. Click the plus (+) sign next to **Decisions** to add a decision service.

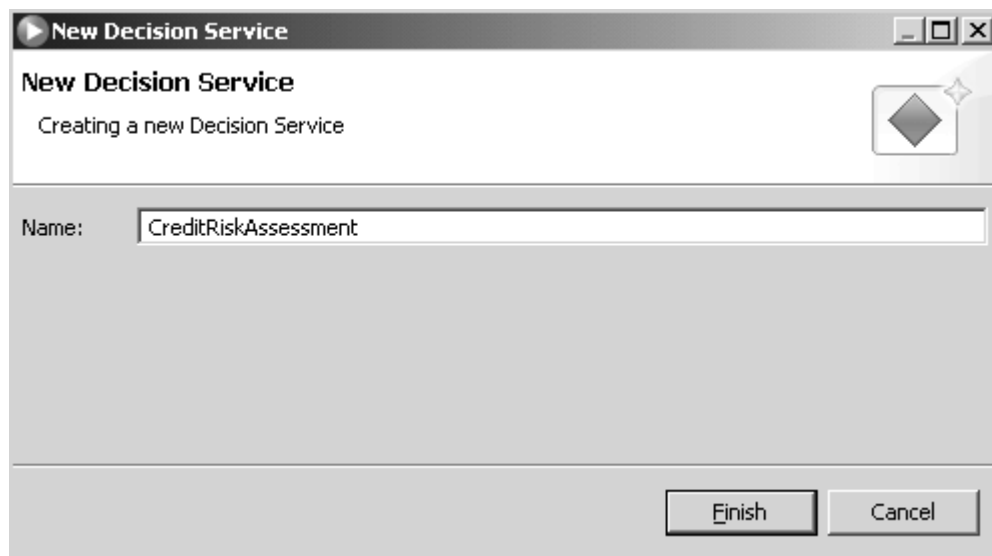
**Note**

Similar to IBM Integration Designer, you can create rule sets and decision tables in IBM Process Designer. In IBM Process Designer, they are called **BAL Rules** and **Decision Tables**. IBM Process Designer also offers a third option: **WebSphere ILOG JRules**. A JRules service allows easy integration between IBM WebSphere ILOG JRules and IBM Business Process Manager. You can use this rule component to connect to and implement rule applications that are available on a JRules Rule Execution Server.

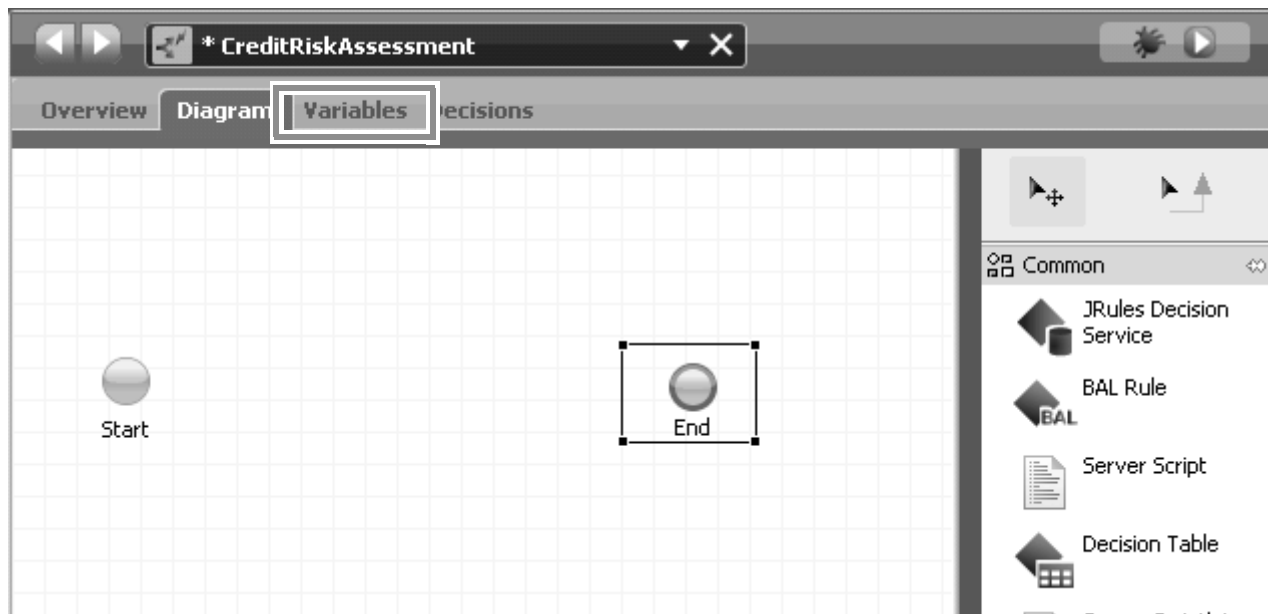
- ___ b. In the **Create New** window, click **Decision Service**.



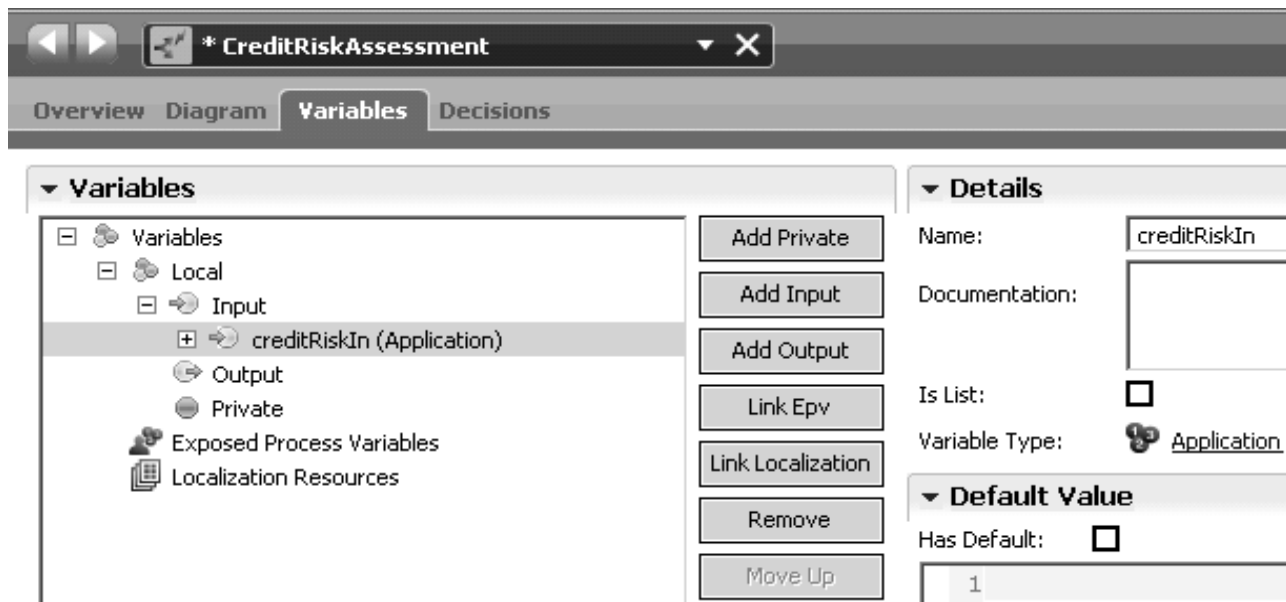
- ___ c. In the **New Decision Service** window, enter **CreditRiskAssessment** as the decision service name, and then click **Finish**.



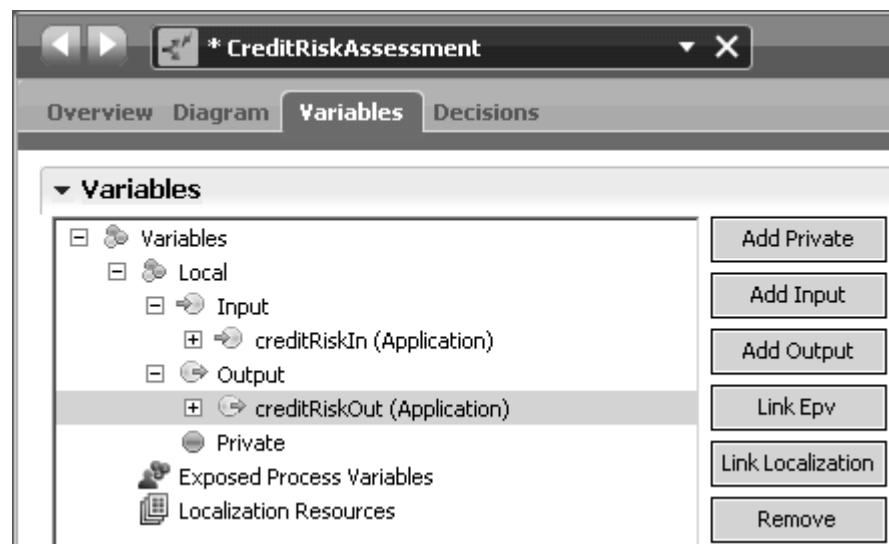
- ___ 4. Define input and output variables to the decision service
- ___ a. In the **CreditRiskAssessment** decision service, click the **Variables** tab.



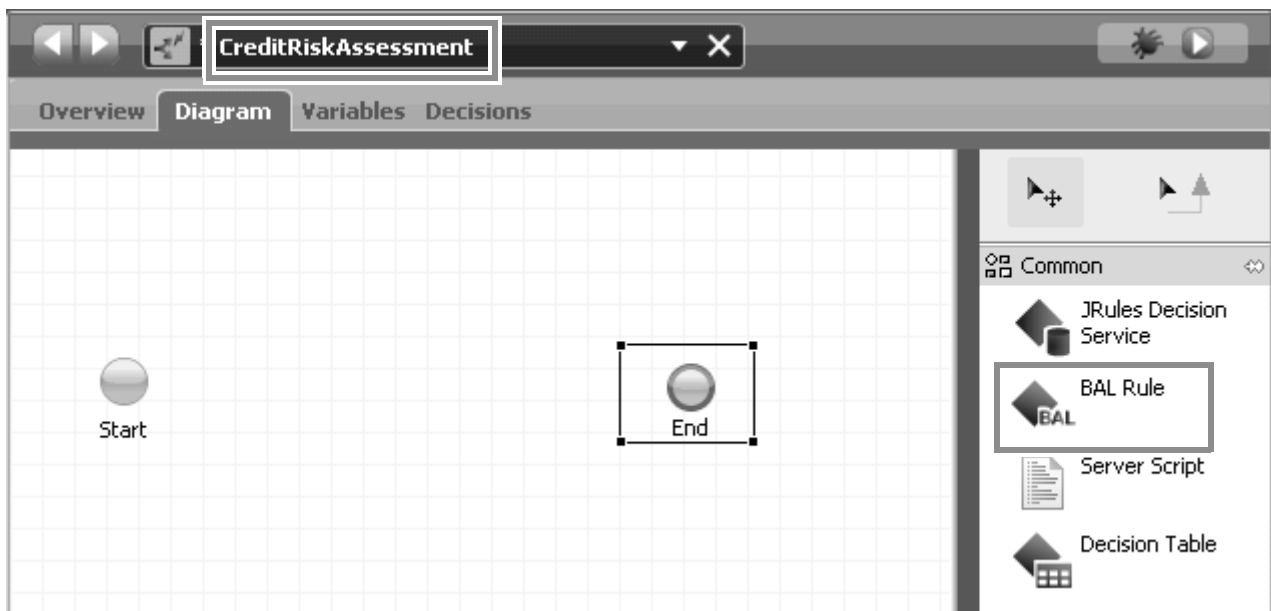
- ___ b. Click **Add Input** to add an input variable.
- ___ c. In the **Details** section, enter `creditRiskIn` as the name for the input variable.
- ___ d. Click **Select** next to **Variable type** and select **Application** from the list.



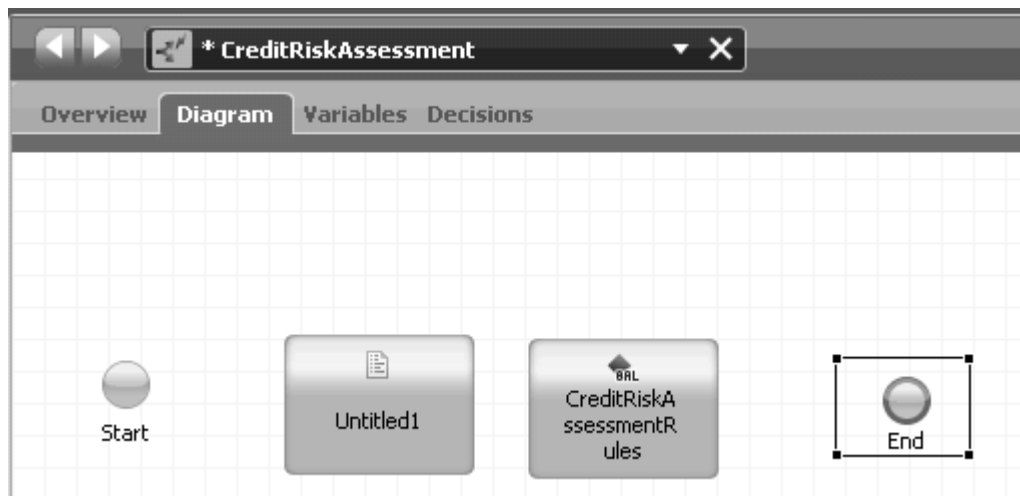
- ___ e. Click **Add Output** to add the output variable.
- ___ f. In the **Details** section, enter `creditRiskOut` as the name for the output variable.
- ___ g. Click **Select** next to **Variable Type** and select **Application** from the list.



- ___ 5. Save your work.
- ___ 6. Add a **BAL Rule** component to the **CreditRiskAssessment** decision service.
 - ___ a. In the **CreditRiskAssessment** editor, click the **Diagram** tab.
 - ___ b. Click **BAL Rule** in the component palette and drag it to the service diagram.

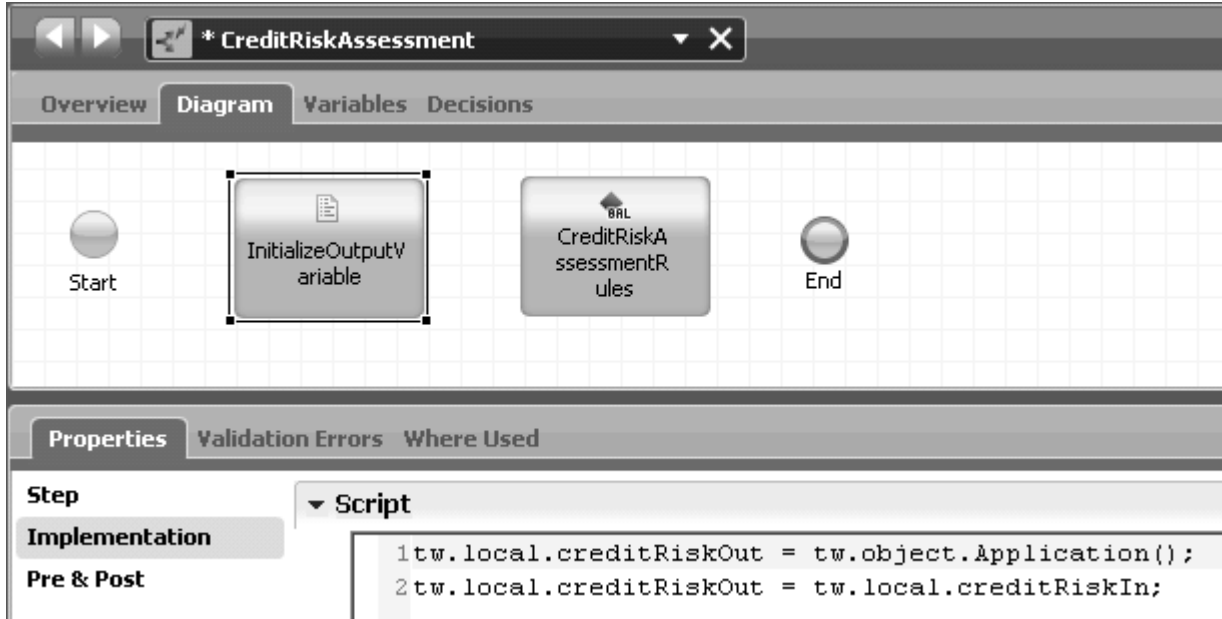


- ___ c. In the **Properties** view tab, change the name from Untitled1 to **CreditRiskAssessmentRules**.
- ___ d. Drag a **Server Script** activity from the palette to the diagram, to the left of the **CreditRiskAssessmentRules** component.



- ___ e. Select the server script component, and click the **Properties** view tab.
- ___ f. Click the **Step** tab in **Properties**.
- ___ g. Set the **Name** to **InitializeOutputVariable**.
- ___ h. In the same **Properties** view, click the **Implementation** tab.
- ___ i. Enter the following code in the **Script** box:

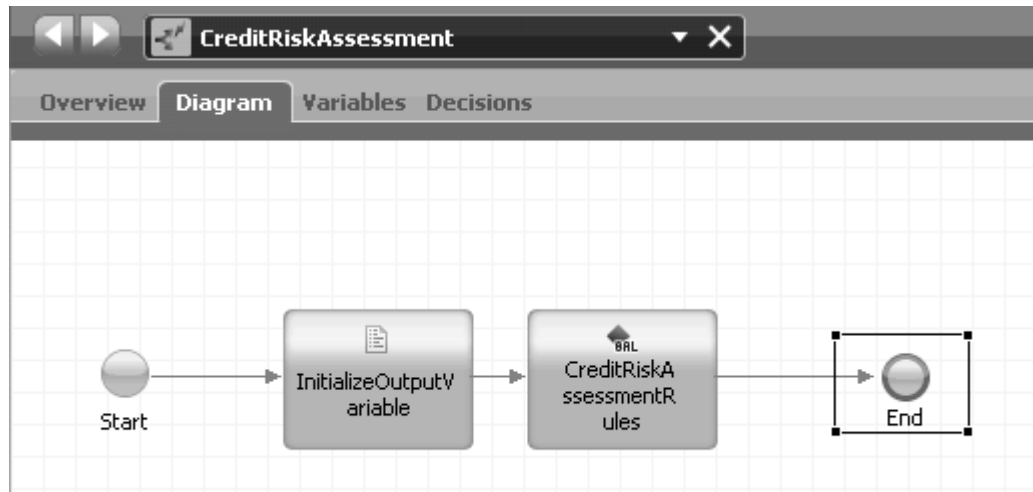
```
tw.local.creditRiskOut = tw.object.Application();
tw.local.creditRiskOut = tw.local.creditRiskIn;
```



- ___ j. Select the **Sequence Flow** from the palette on the left.



- ___ k. Connect all the activities sequentially, from left to right.



- ___ l. Save your work.

Write a BAL rule for the decision service

- ___ 1. Use the BAL rule editor to create rules in **CreditRiskAssessmentRules**.
- ___ a. Click the **Decisions** tab, and then click the **CreditRiskAssessmentRules** rule component.



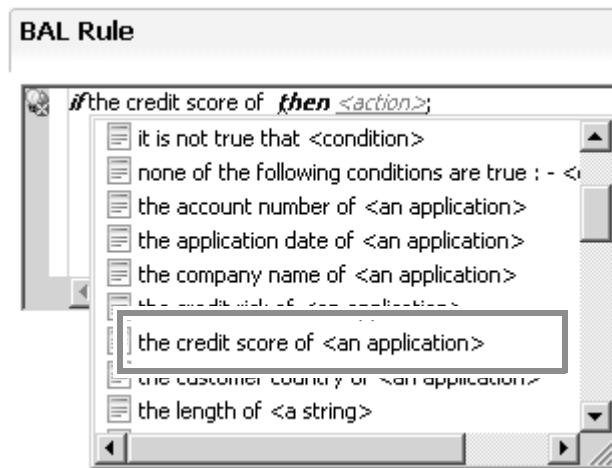
The rule editor opens with a basic BAL rule template, containing one condition (if) and one action (then). The BAL editor uses look-ahead and content assist editors to assist the author creating the rule.

- ___ b. Create a rule from the default template. Click the **condition** link to use the content assist menu to complete the condition. Add the condition statements by double-clicking each as it appears in the list.

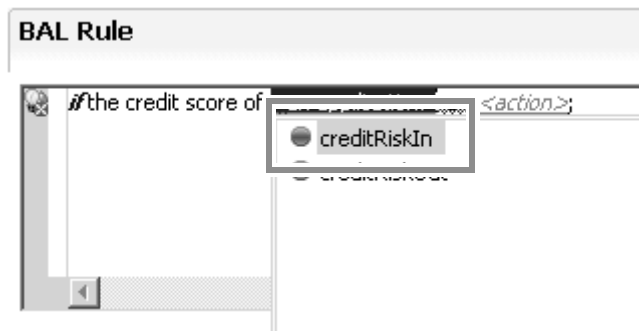
**Note**

If the list closes before you can select a condition statement, press **Shift+Spacebar** to reopen the content assist menu.

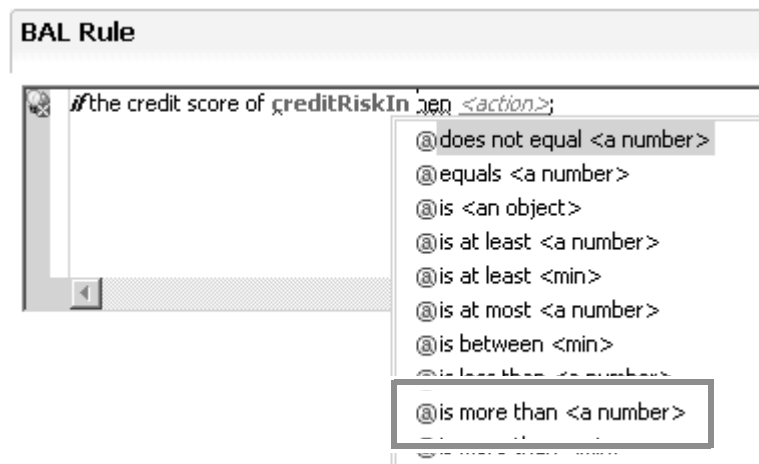
- __ c. Double-click the **credit score of** from the menu.



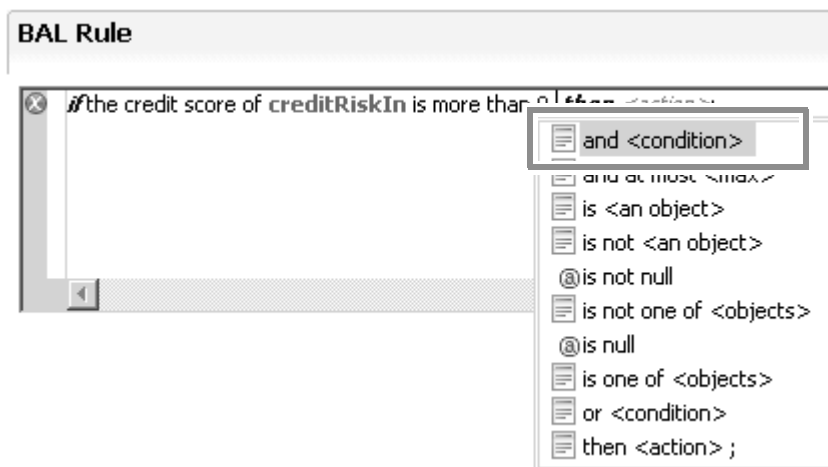
- __ d. Double-click **creditRiskIn** from the menu.



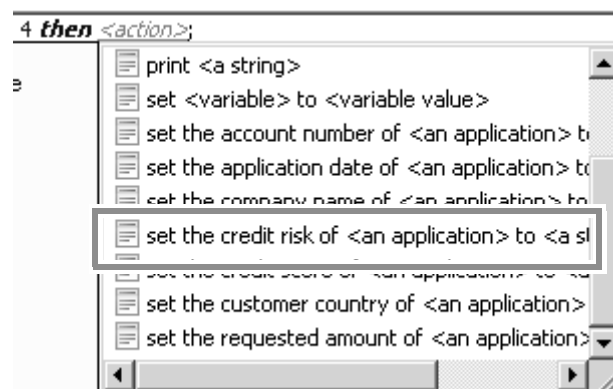
- __ e. Double-click **is more than <a number>** from the menu.



- ___ f. Type 0 and press the space bar. Double-click **and** from the menu.

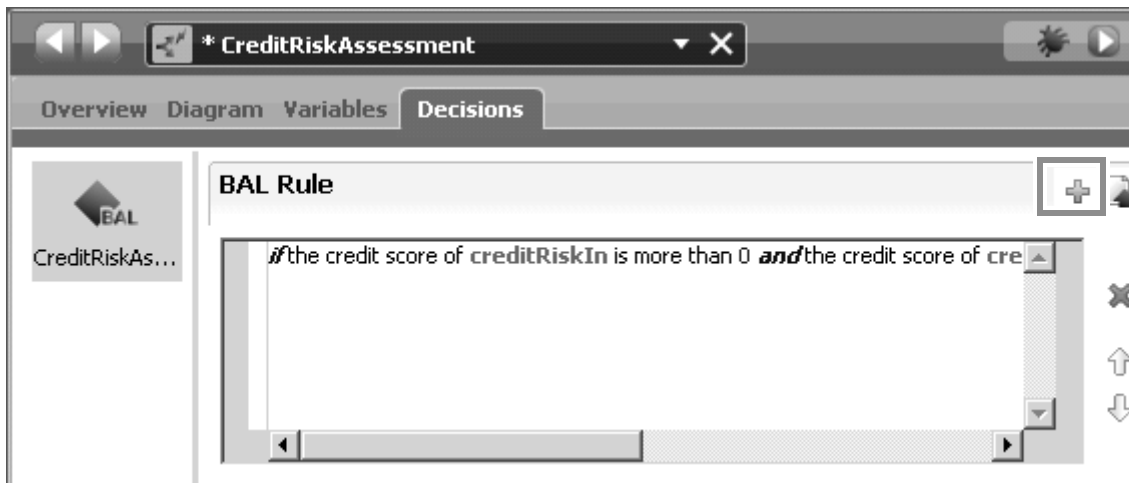


- ___ g. Complete the rule to match the following logic:
 the credit score of creditRiskIn is less than 4
- ___ h. Click the **action** link.
- ___ i. Double-click **set the credit risk of <an application>**.



- ___ j. Double-click `creditRiskOut` from the menu.
- ___ k. Double-click `<a string>`
- ___ l. Type `"HIGH"`;
- ___ m. The rule resembles the following:

```
if the credit score of creditRiskIn is more than 0 and the credit score
of creditRiskIn is less than 4 then set the credit risk of
creditRiskOut to "HIGH";
```
- ___ 2. Add a second rule editor window. Click the plus (+) sign in the upper right corner of the BAL rule editor panel.



- ___ 3. Repeat the previous sequence of steps to create a second rule that reads:

```
if the credit score of creditRiskIn is more than 3 and the credit score
of creditRiskIn is less than 8 then set the credit risk of
creditRiskOut to "MED";
```

```
if the credit score of creditRiskIn is more than 3 and the credit score of creditRiskIn is less than 8 then set the credit risk of creditRiskOut to "MED";
```

- ___ 4. Add a third rule which reads:

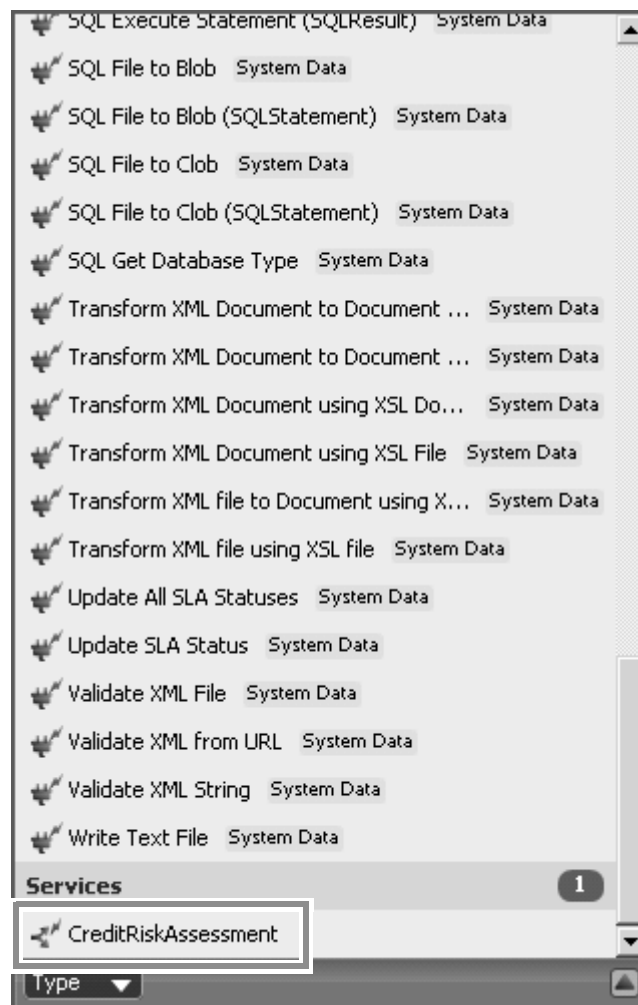
```
if the credit score of creditRiskIn is more than 7 and the credit score
of creditRiskIn is less than 12 then set the credit risk of
creditRiskOut to "LOW";
```

```
if the credit score of creditRiskIn is more than 7 and the credit score of creditRiskIn is less than 12 then set the credit risk of creditRiskOut to "LOW";
```

- ___ 5. Save your work.
- ___ 6. Close the **CreditRiskAssessment** implementation. You are returned to the **Loan Application Process**. If you are not, then open the process by clicking **Processes** and double-clicking **Loan Application Process**.

Attach the decision service to the implementation

- ___ 1. Select the **Credit Risk Assessment** activity from the process.
- ___ 2. Select the **Properties** view tab.
- ___ 3. Click the **Implementation** tab in the **Properties** view.
- ___ 4. By default, the implementation of the activity is the **Default Human Service**. Click the **Select** button next to this service.
- ___ 5. From the list of available services, click **CreditRiskAssessment**. The decision service is attached to the implementation of the activity. You may need to scroll to the bottom of the list to find it, or start typing the name of the service to use look-ahead fetching.



Map data to the activities

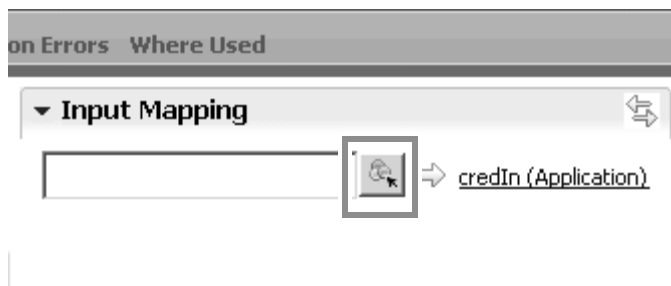
- ___ 1. Map data from the BPD to the **Determine Eligibility** service. For the implementation of the service, you created a general system service, and set its input and output

variables to instances of the **Application** business object. This process copies the data from the BPD into the input for the service.

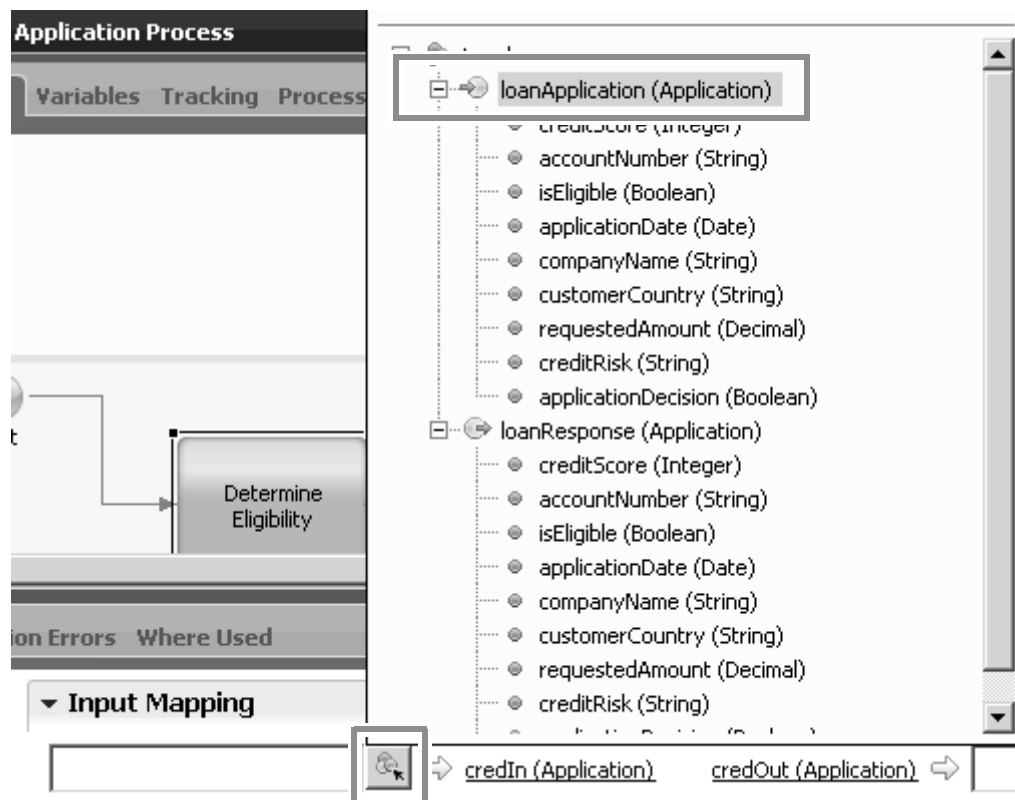
- ___ a. Select the **Determine Eligibility** activity in the BPD.
- ___ b. Select the **Data Mapping** tab in the **Properties** view.



- ___ c. Click the code builder button for the **Input Mapping** section.



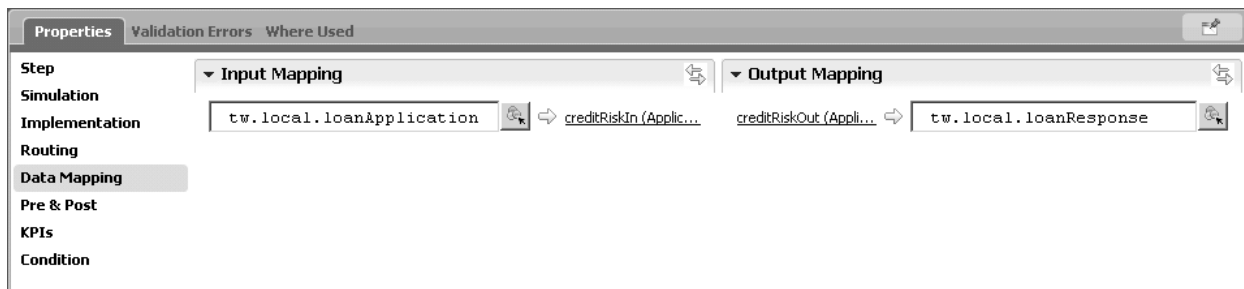
- ___ d. Double-click the `loanApplication (Application)` business object. The entire business object is mapped to the input variable (`credIn`).



- ___ e. Use the code builder button to set the value of the output map from `credOut` to `loanApplication (Application)`. Your completed map resembles the following:



- ___ 2. Map data from the BPD to the **Credit Risk Assessment** activity.
- ___ a. Select the **Credit Risk Assessment** activity.
 - ___ b. Click the **Data Mapping** tab in the **Properties** view.
 - ___ c. Map the `loanApplication` variable to the `creditRiskIn` variable in the **Input Mapping** section.
 - ___ d. Map the `creditRiskOut` variable to the `loanResponse` variable in the **Output Mapping** section.
 - ___ e. Your completed map resembles the following:

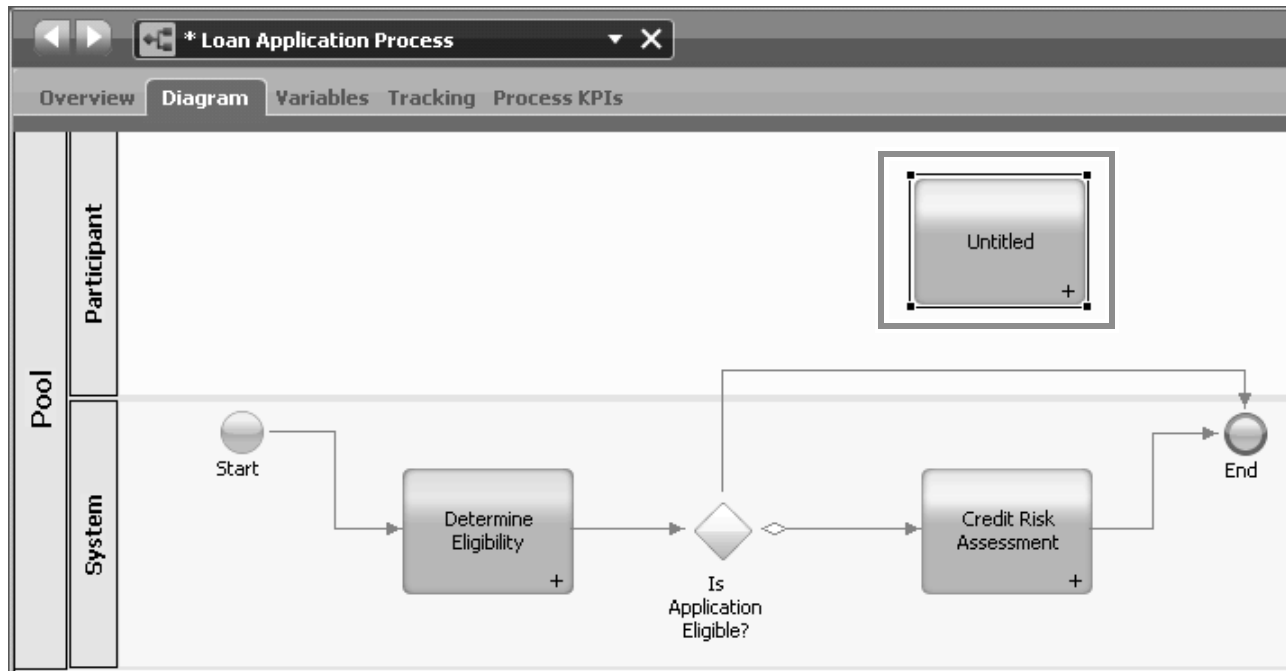


___ 3. Save your work.

Part 3: Create a coach component in IBM Process Designer

In this portion of the exercise, you add a human service component to the process diagram. This component uses a coach to accept input from a human task.

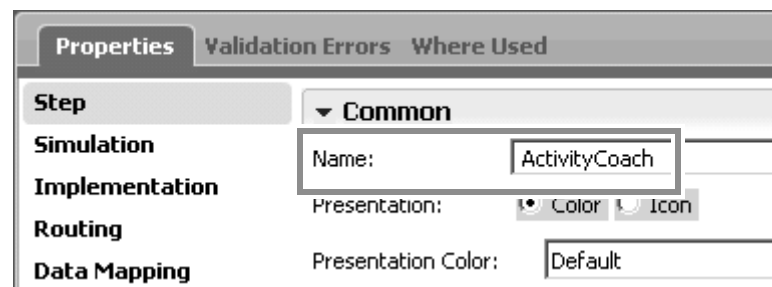
___ 1. Use the palette in the process editor to add an activity to the **Loan Application Process**. Add the activity in the **Participant** lane.



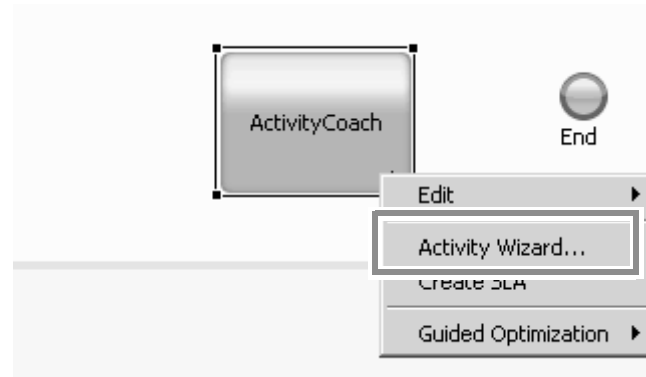
___ 2. Select the new untitled activity and click the **Properties** view tab.

___ 3. Click the **Step** tab in the **Properties** view.

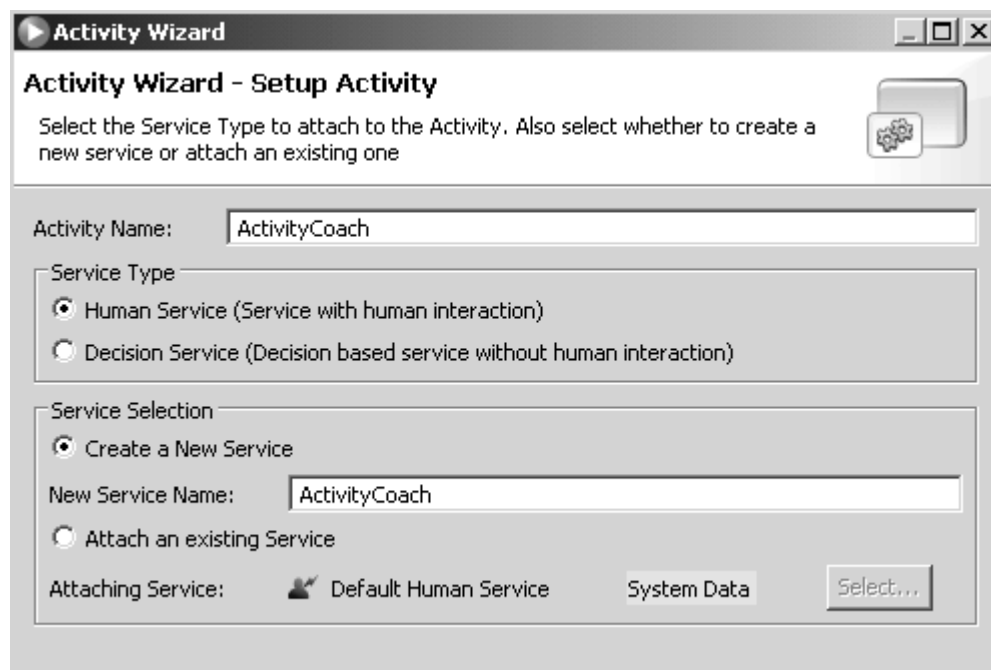
___ 4. In the **Common** section, set the **Name** of the activity to **ActivityCoach**.



- ___ 5. Right-click the activity in the canvas and select **Activity Wizard**.

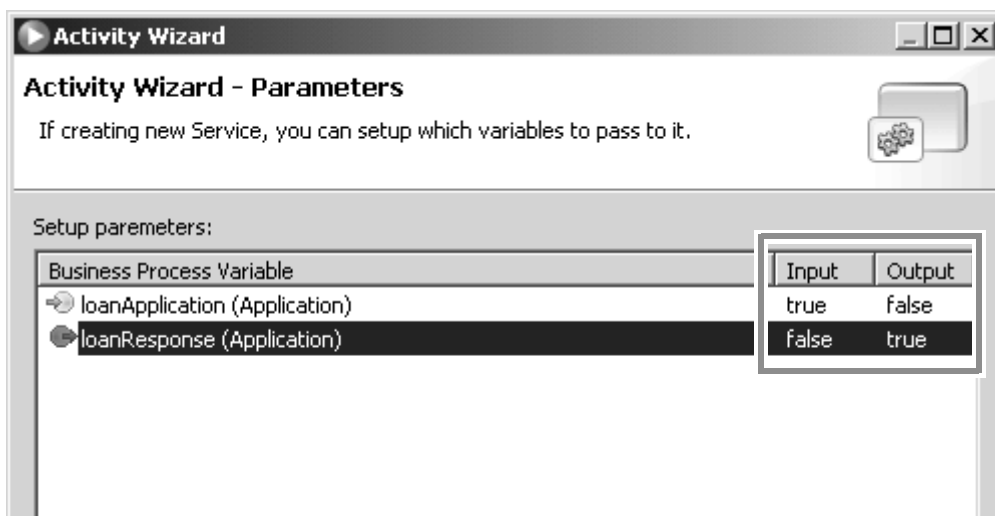


- ___ 6. In the **Activity Wizard**, accept the default selections. **Service Type** is selected as **Human Service**. Click **Next**.

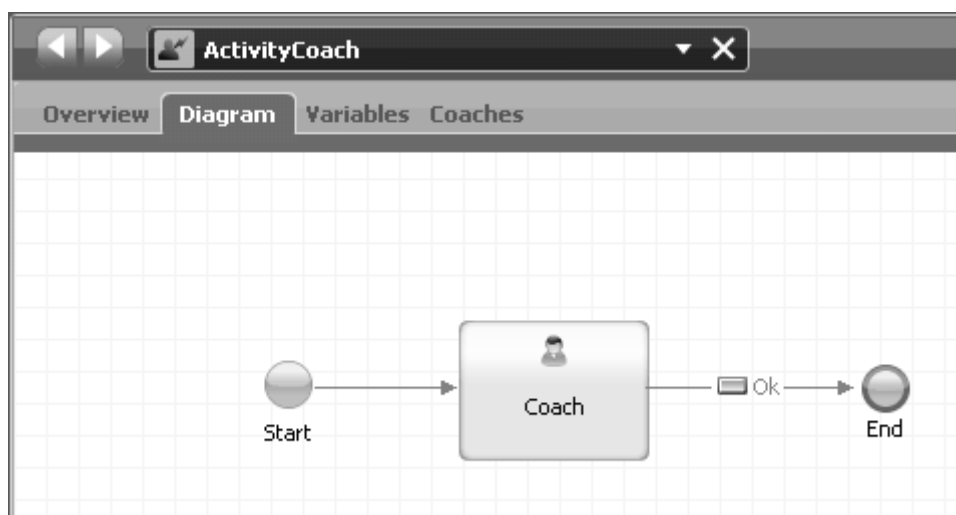


- ___ 7. Set the mapping variables for the service.
- ___ a. Select the **loanApplication** row and **Output** column, and click **true**. The value toggles to **false**.

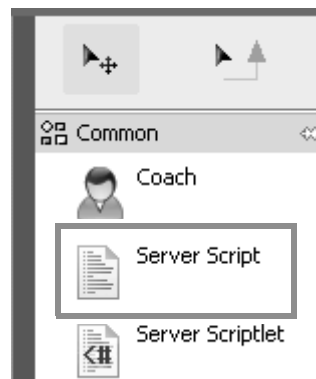
- ___ b. Select the **loanResponse** row and **Input** column, and click **true**. The value toggles to **false**.



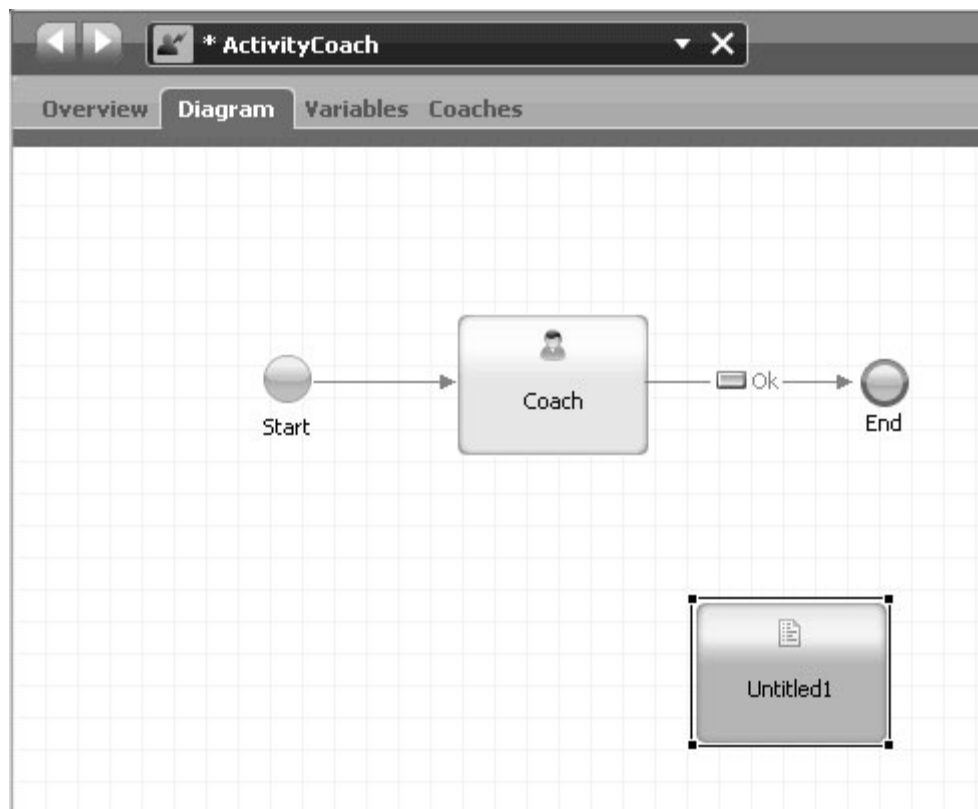
- ___ c. Click **Finish**.
- ___ d. Save your changes.
- ___ 8. Double-click the **ActivityCoach** component to open the human service editor.



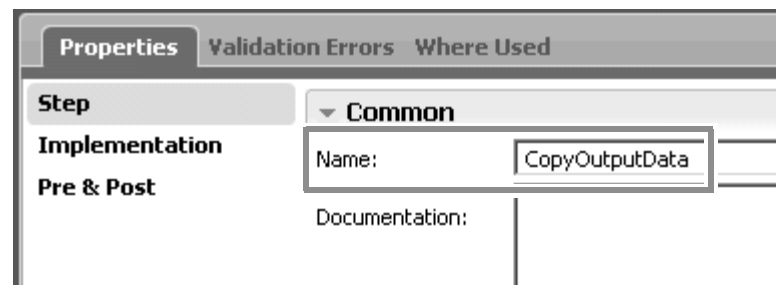
- ___ 9. Drag the **Server Script** element to the canvas.



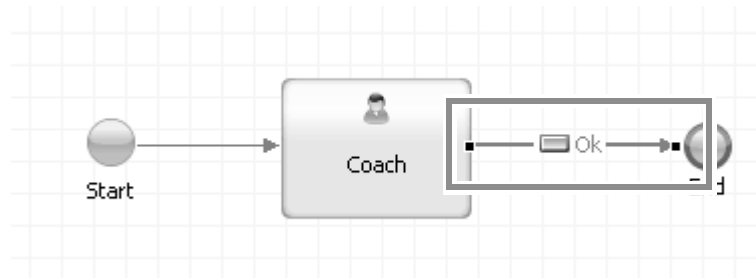
___ 10. Your diagram resembles the following:



___ 11. Select the **Server Script** activity in the diagram if it is not already selected. Click the **Properties** view tab, select the **Step** tab, and enter `CopyOutputData` as the **Name**.



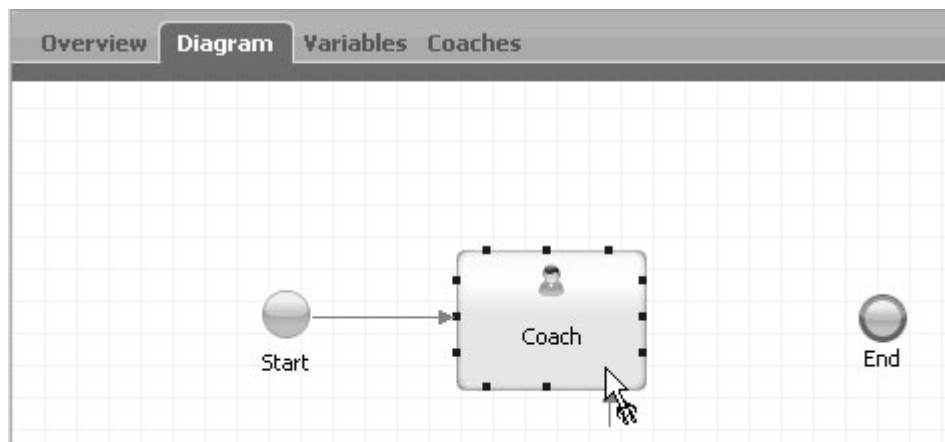
- ___ 12. Open Windows Explorer and navigate to **C:\Support Files\Ex 5**. Open **ServerScript_snippet.txt** using a text editor.
- ___ 13. Copy the contents of **ServerScript_snippet.txt**. Close the file.
- ___ 14. In the **ActivityCoach** designer, select the **Properties** view tab, and click the **Implementation** tab. Paste the snippet in the blank space underneath the **Script** section. Alternatively, you can manually enter the following:
- ```
tw.local.loanResponse = new tw.object.Application();
tw.local.loanResponse = tw.local.loanApplication;
```
- \_\_\_ 15. Save your work.
- \_\_\_ 16. Right-click the link between the **Coach** and **End** activities, and select **Delete**.



- \_\_\_ 17. Select the **Sequence Flow** icon from the palette.

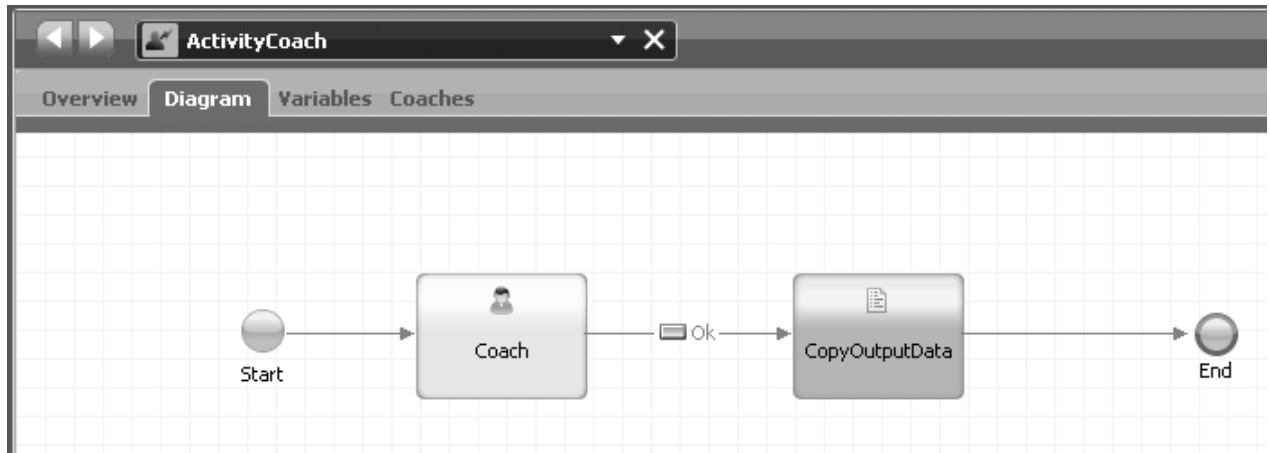


- \_\_\_ 18. With the **Sequence Flow** pointer, hover over the **Coach** activity to display the dotted wiring connection points.



- \_\_\_ 19. Click **Coach** to select any one of the connection points. Then, click the **CopyOutputData** server script.

- \_\_\_ 20. Use the **Sequence Flow** tool again to connect the **CopyOutputData** server script to the **End** activity. After making all these connections, your diagram resembles the following:



- \_\_\_ 21. Select the **Selection Tool** icon from the palette.



- \_\_\_ 22. Double-click the **Coach** to open the **Coaches** interface editor.

When you create a human service and declare input and output variables, the activity wizard automatically creates the interface, with input and output variable fields. You do not need the **Loan Response** section in the interface for this lab. During the test, you may modify the fields of the application section and click the **Submit** button. The server script created in the previous step copies the modified input data to the **loanResponse** variable.

Click the section with the **Loan Response** title; the complete section is highlighted in blue. Press **Delete**.

- \_\_\_ 23. After deleting the **Loan Response** section, only the **Loan Application** section remains.
- \_\_\_ 24. Save your changes and close the **ActivityCoach** editor.

## Connect the coach to the business process diagram

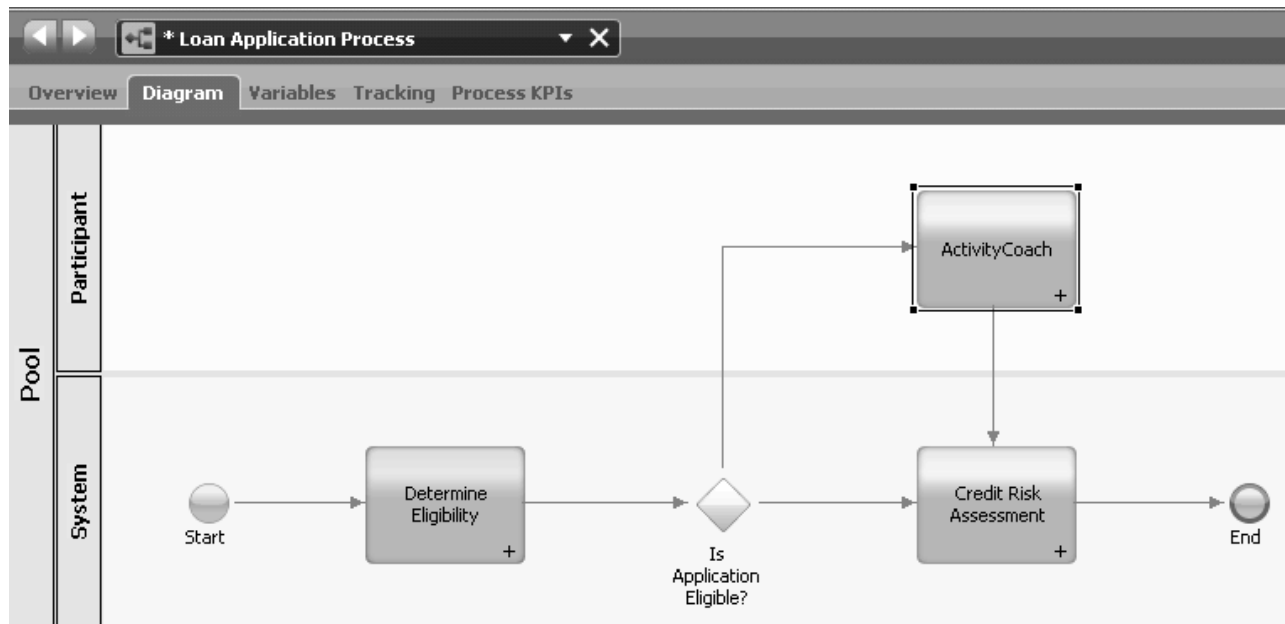
Having closed the coach editor, you are returned to the business process diagram. If not, click **Processes** and double-click **Loan Application Process**.

- \_\_\_ 1. Click the wire connecting the decision gateway to the end element and press **Delete**.
- \_\_\_ 2. Select the **Sequence Flow** tool from the palette.



- \_\_\_ 3. Use the tool to connect the decision gateway to the **ActivityCoach**.

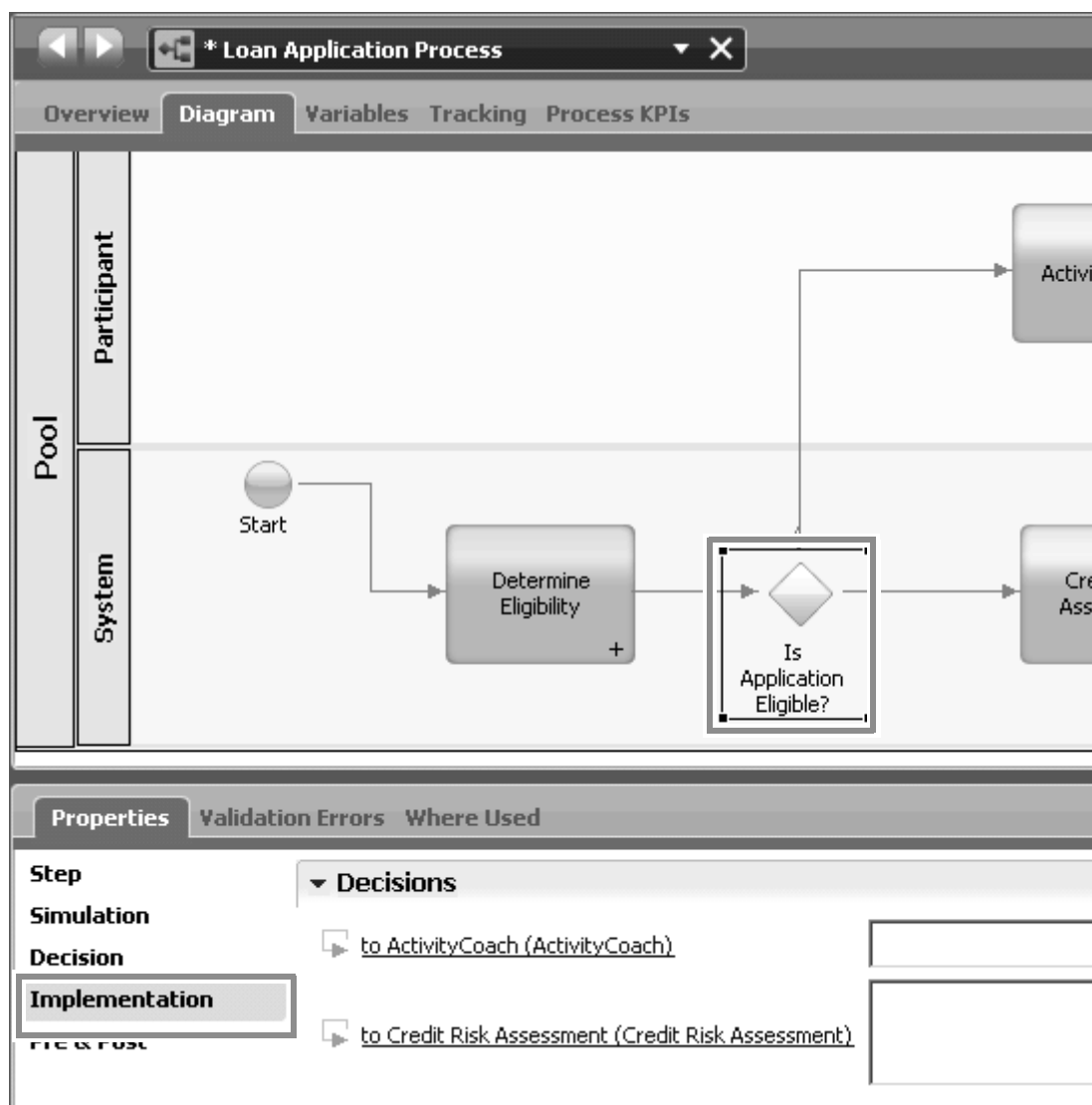
- \_\_\_ 4. Connect the **ActivityCoach** to the **Credit Risk Assessment** element.
- \_\_\_ 5. Compare your diagram to the following:



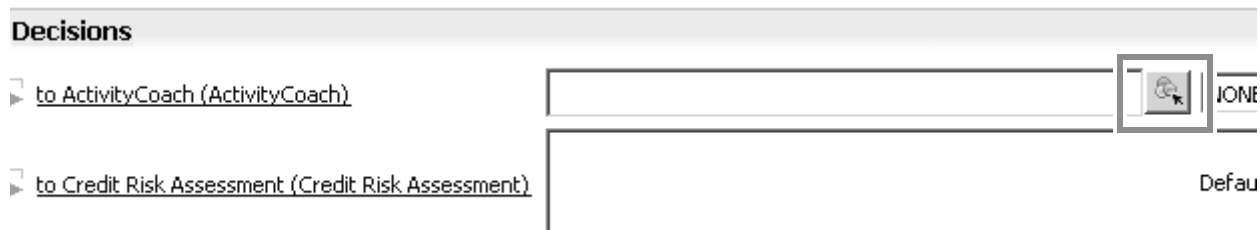
- \_\_\_ 6. Click **File > Save All** to save all your changes.

### Add logic to the decision gateway

- \_\_\_ 1. Click the **Is Application Eligible?** decision gateway and select **Implementation** from the **Properties** view tab.

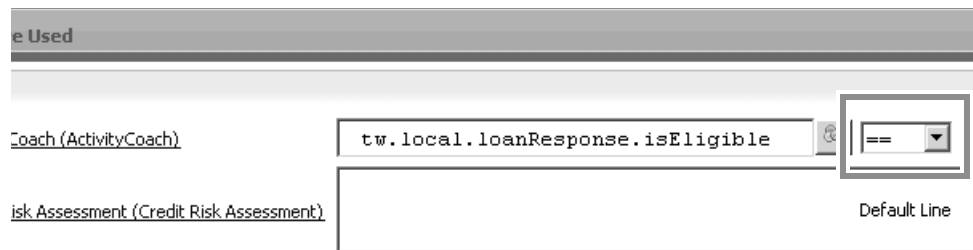


\_\_\_ 2. Click the code builder button next to the to Activity Coach decision field.

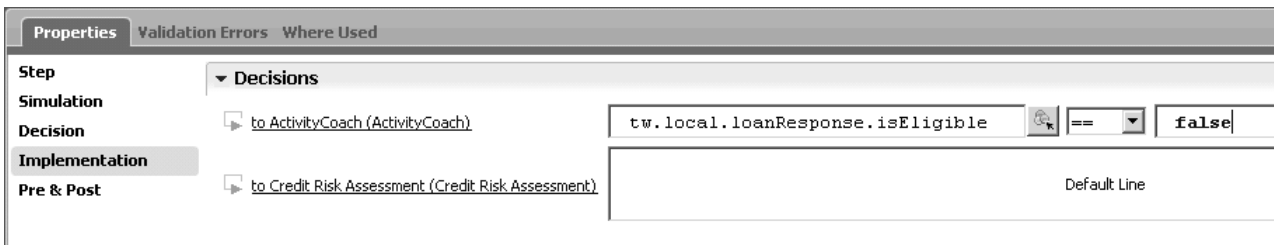


\_\_\_ 3. Click **loanResponse** > **isEligible**.

\_\_\_ 4. From the middle drop-down, select ==



- \_\_\_ 5. In the third field, type **false**. Your decision implementation looks like:



The decision gateway forwards control for manual input if the application is ineligible (`isEligible == false`). Otherwise, it follows the path of the default line to assess the credit risk.

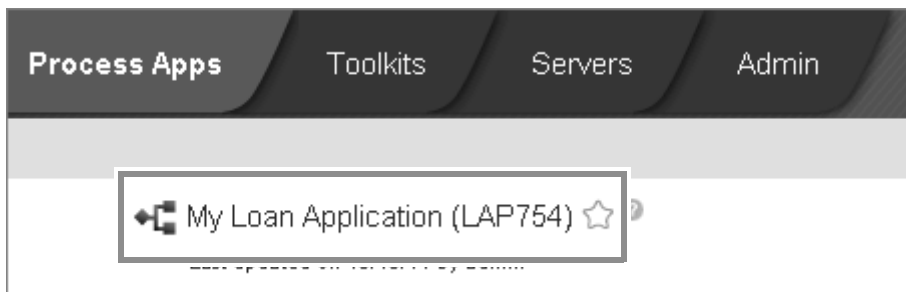
- \_\_\_ 6. Save your changes.

## Part 4: Invoking BPD from a BPEL process

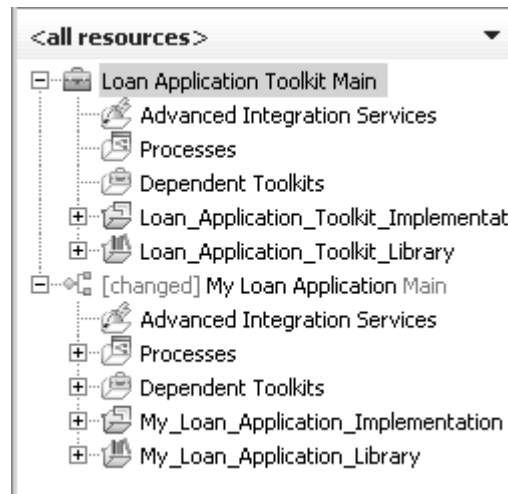
In this part, you learn how IBM Integration Designer and IBM Process Designer share the assets which are in the Process Center repository. You create a simple BPEL process in IBM Integration Designer named **ApplicationReviewBPEL**. This BPEL process invokes the BPD you created in IBM Process Designer.

- \_\_\_ 1. On the Windows desktop, open the folder named **Exercise Shortcuts**.
- \_\_\_ 2. Double-click the shortcut labeled **Exercise 5**.
- \_\_\_ 3. Close the **Getting Started** tab.
- \_\_\_ 4. Switch to the Process Center perspective by clicking **Window > Switch to Process Center**.
- \_\_\_ 5. In the Process Center Login window, enter the following credentials:  
**Process Center URI:** `http://localhost:9080/ProcessCenter`  
**User Name:** `admin`  
**Password:** `admin`
- \_\_\_ 6. Click **Login**. It takes a minute to two for the Process Center to log in. You do not need to click the **Login** button twice.
- \_\_\_ 7. Close the **Getting Started with IBM Process Center 7.5** welcome screen, by clicking **X** at the upper right of the window.

- \_\_\_ 8. In the **Process Apps** tab, click **Open in workspace** next to the **My Loan Application**.

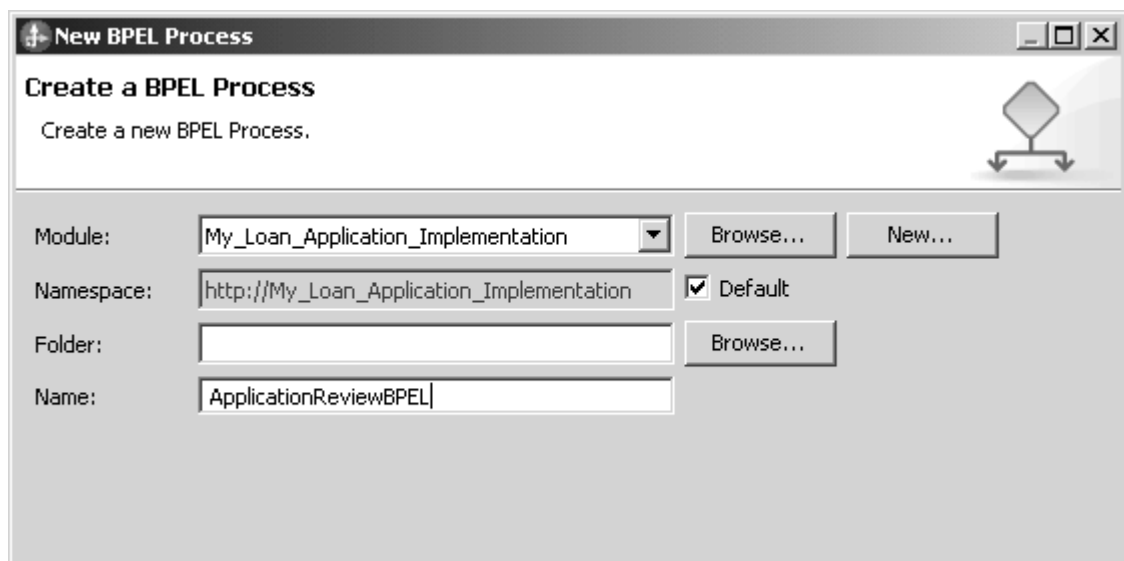


- \_\_\_ 9. Accept the defaults in the **Open Process Applications or Toolkits in Workspace** window and click **OK**.
- \_\_\_ 10. The Business Integration perspective opens with the **My Loan Application** module.



- \_\_\_ 11. It takes a few minutes for the association with the Process Center to take place. Watch the status bar in the lower right. Wait until the status reaches 100 percent, which indicates that the update is complete.
- \_\_\_ 12. Expand **My Loan Application >My\_Loan\_Application\_Implementation**.
- \_\_\_ 13. Right-click **Integration Logic** and click **New > BPEL Process**.
- \_\_\_ 14. In the **New BPEL Process window**, enter **Name** as `ApplicationReviewBPEL`





**New BPEL Process**

Create a BPEL Process

Create a new BPEL Process.

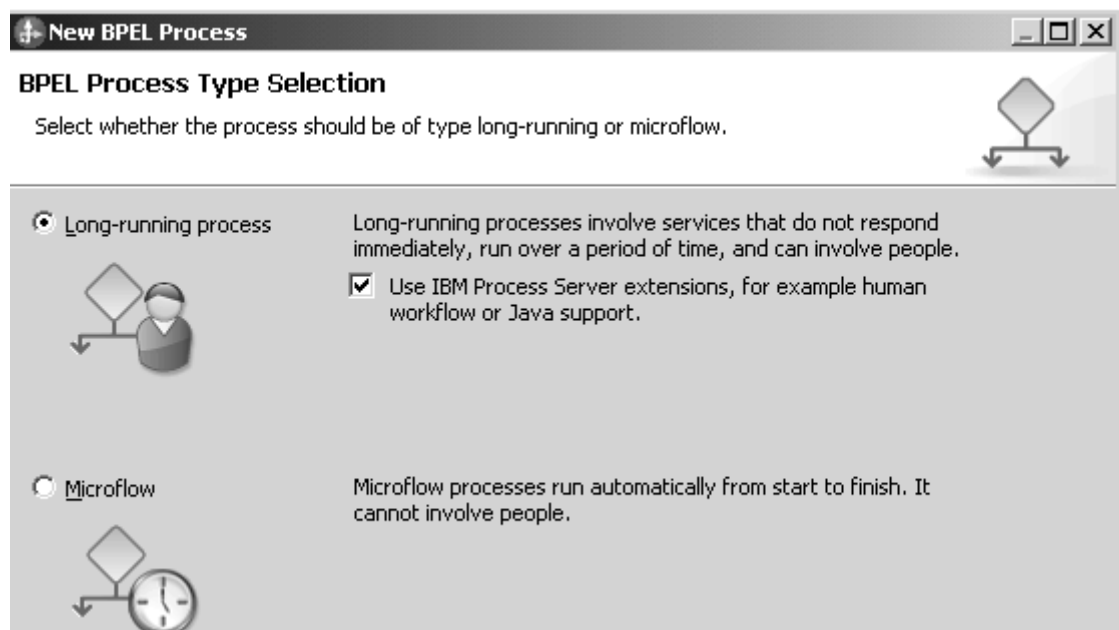
Module:  Browse... New...

Namespace:  ☒ Default

Folder:  Browse...

Name:

- \_\_\_ 15. Click **Next**. In the **BPEL Process Type Selection**, make sure **Long-running process** and **IBM Process Server extensions** are selected.



**New BPEL Process**

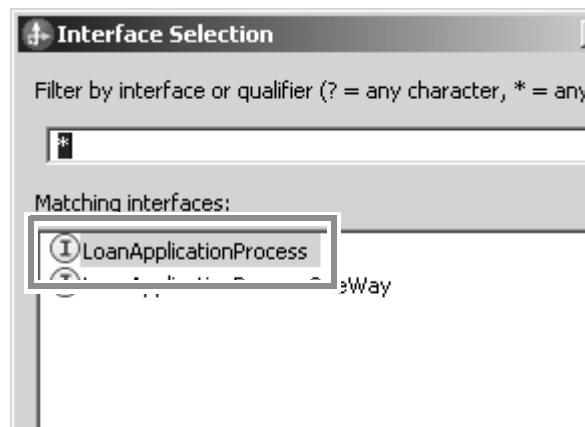
**BPEL Process Type Selection**

Select whether the process should be of type long-running or microflow.

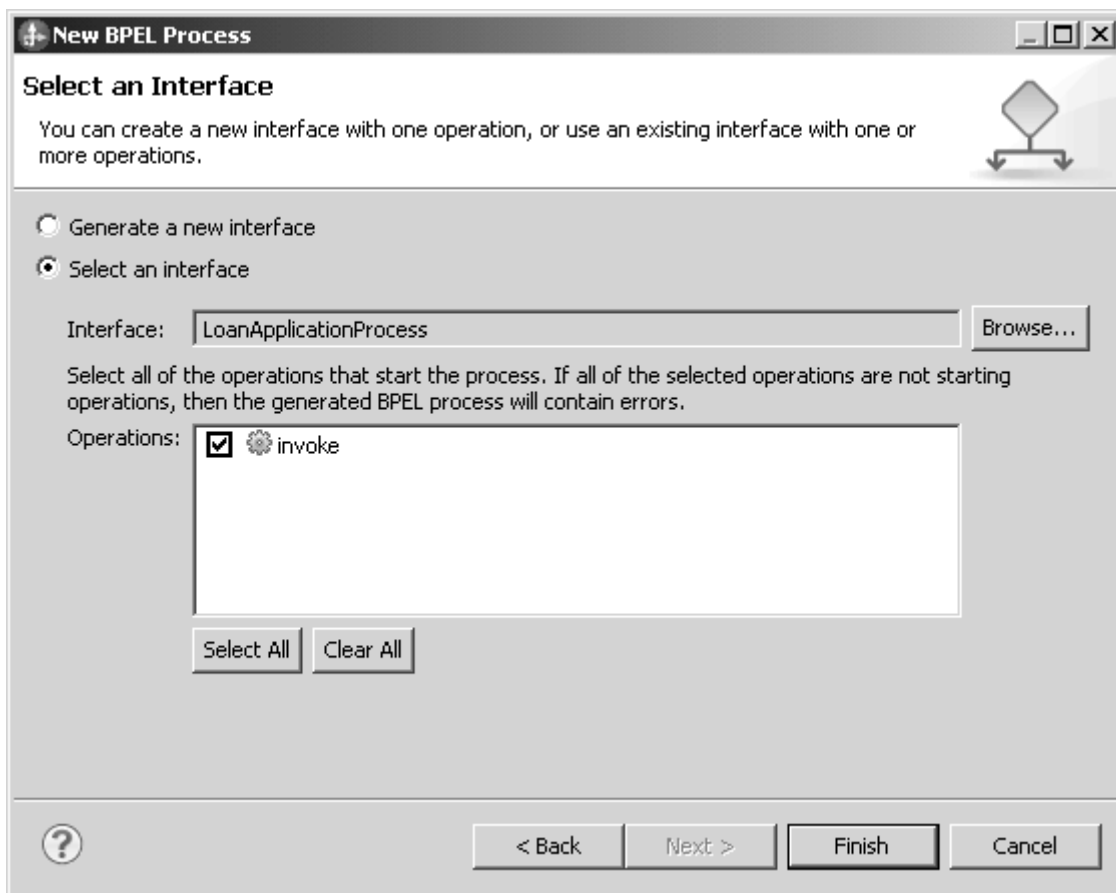
☒ **Long-running process** Long-running processes involve services that do not respond immediately, run over a period of time, and can involve people.  
☒ Use IBM Process Server extensions, for example human workflow or Java support.

☐ **Microflow** Microflow processes run automatically from start to finish. It cannot involve people.

- \_\_\_ 16. Click **Next**.
- \_\_\_ 17. In the **Select an Interface** window, click **Select an interface**.
- \_\_\_ 18. Click **Browse** button to select an interface. Select **LoanApplicationProcess** and click **OK**.



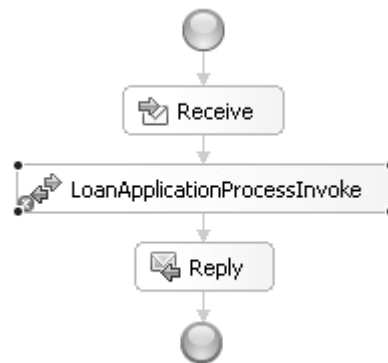
\_\_\_ 19. You are back on the **Select an Interface** window, verify the settings.



\_\_\_ 20. Click **Finish**.

\_\_\_ 21. The BPEL editor opens. Expand **My Loan Application > Processes**. Drag **Loan Application Process** and drop it between the **Receive** and **Reply** activities.

\_\_\_ 22. In the **Create Assembly Artifacts** dialog click **Yes**.



- \_\_\_ 23. Select the **LoanApplicationProcessInvoke** activity and examine the **Properties** view. Click the **Details** tab. Click the **none** link in the **Inputs** row.

Task Flows Build Activities Properties Problems Server Logs Servers

**Invoke - LoanApplicationProcessInvoke**

**Details**

Partner:\*  Browse...

Interface:\*

Operation:\*

☒ Use data type variables mapping

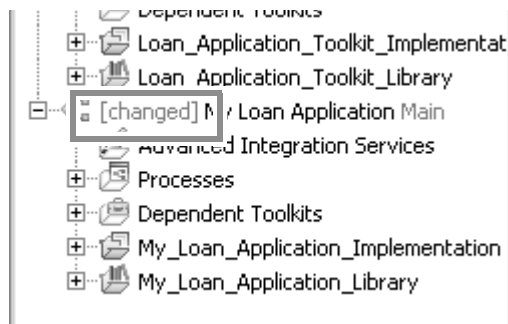
|         | Name            | Type        |                      | Store into Variable  |
|---------|-----------------|-------------|----------------------|----------------------|
| Inputs  | loanApplication | Application | <a href="#">none</a> |                      |
|         |                 |             |                      |                      |
| Outputs | loanResponse    | Application |                      | <a href="#">none</a> |
|         |                 |             |                      |                      |

- \_\_\_ 24. Click **loanApplication : Application**.
- \_\_\_ 25. Click the **none** link in **Outputs** row and click **loanResponse : Application**.

|         | Name            | Type        |
|---------|-----------------|-------------|
| Inputs  | loanApplication | Application |
|         |                 |             |
| Outputs | loanResponse    | Application |
|         |                 |             |

| Read from Variable  |              |
|---------------------|--------------|
| loanApplication     | ⇒            |
| Store into Variable |              |
| ⇒                   | loanResponse |

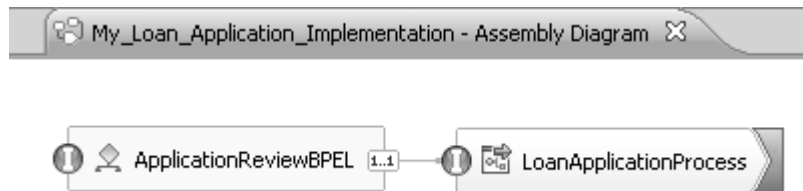
- \_\_\_ 26. Press **Ctrl+S** to save your changes.
- \_\_\_ 27. If the **My Loan Application** module indicates that it has been changed, right-click the **My Loan Application** module and select **Refresh and Publish**.



- \_\_\_ 28. It is likely that you need to create a snapshot while publishing. If the **Create Snapshots and Update Dependencies** dialog appears, accept the defaults and click **Refresh and Publish**.

### Part 5: Testing the integration

- \_\_\_ 1. Expand **My Loan Application > My\_Loan\_Application\_Implementation** and double-click the **Assembly Diagram**.



- \_\_\_ 2. Right-click **ApplicationReviewBPEL** and select **Test Component** from the menu. The integrated test client opens.
- \_\_\_ 3. In the **Initial request parameters** table, enter the following test data. Leave the other fields with default values:
- **creditScore:** 10
  - **companyName:** ACME

Initial request parameters:

☒ Value editor ☐ XML editor

| Name            | Type     | Value                      |
|-----------------|----------|----------------------------|
| creditScore     | int      | 10                         |
| accountNumber   | string   |                            |
| isEligible      | boolean  | false                      |
| applicationDate | dateTime | 2011-10-14T19:46:39.722-04 |
| companyName     | string   | ACME                       |
| customerCountry | string   |                            |
| requestedAmount | double   | 0                          |

- \_\_\_ 4. Click **Continue**, the green arrow button on the **Events** toolbar.

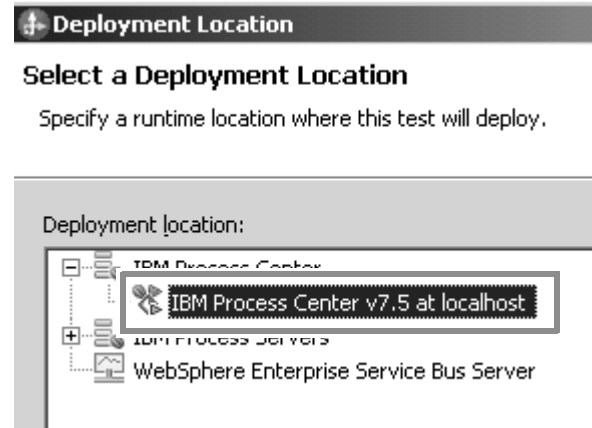
## Integration Test Client: LoanApplication

### Events

This area displays the events in a test trace. Select an event to display its properties in the General Properties and Detailed Properties sections. [More...](#)



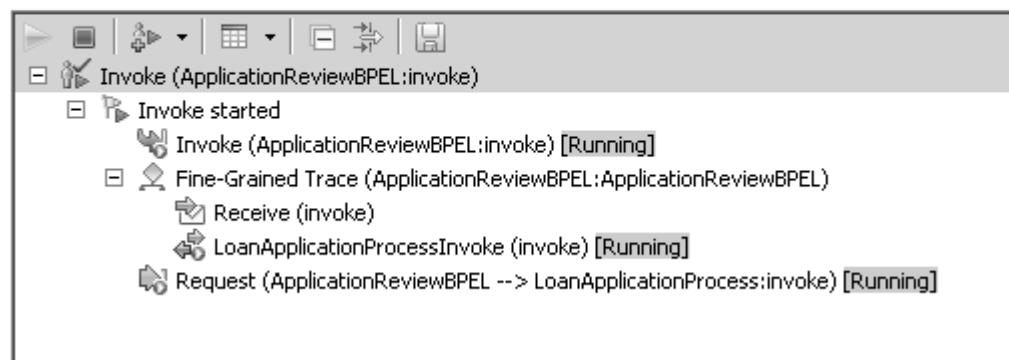
- \_\_\_ 5. When you receive the **Select a Deployment Location** dialog, select **IBM Process Center v7.5 at localhost** and click **Finish**.



- \_\_\_ 6. When the **User Login** dialog appears, select the **Use the authentication settings in the preference and never ask again** check box, and click **OK**. (By default, both the **User ID** and **Password** are set to `admin` during product installation).
- \_\_\_ 7. The test waits at the **Request (ApplicationReviewBPEL > LoanApplicationProcessInvoke:invoke)** in the **Events** window.

### Events

This area displays the events in a test trace. Select an event to display its properties in the General Properties and Detailed Properties sections. [More...](#)



Because ACME is considered a valid company, its marked as an eligible application by the **Determine Eligibility** activity (the JavaScript system service). Eligible

applications are sent to the **Credit Risk Assessment** activity (the BAL rule decision service). Once a credit risk has been set, the process finishes.

- \_\_\_ 8. Select the **Return** event from the test configuration. Examine the values which were returned. The BAL rule decision service set the **creditRisk** field to **LOW**.

tion Test Client: My\_Loan\_Application\_Implementation\_Test

isplays the events in a test trace. Select an event to display its properties in the General Properties and operties sections. [More...](#)

| Name            | Type        | Value        |
|-----------------|-------------|--------------|
| loanResponse    | Application | Ab           |
| creditScore     | int         | Ab 10        |
| accountNumber   | string      | Ab           |
| isEligible      | boolean     | Ab false     |
| applicationDate | dateTime    | Ab 2011-10-1 |
| companyName     | string      | Ab ACME      |
| customerCountry | string      | Ab           |
| creditRisk      | string      | Ab LOW       |

- \_\_\_ 9. Click the **Invoke** button in the test configuration.

**LYEHS**

This area displays the events in a test trace. Select an event to display its properties in the Detailed Properties sections. [More...](#)

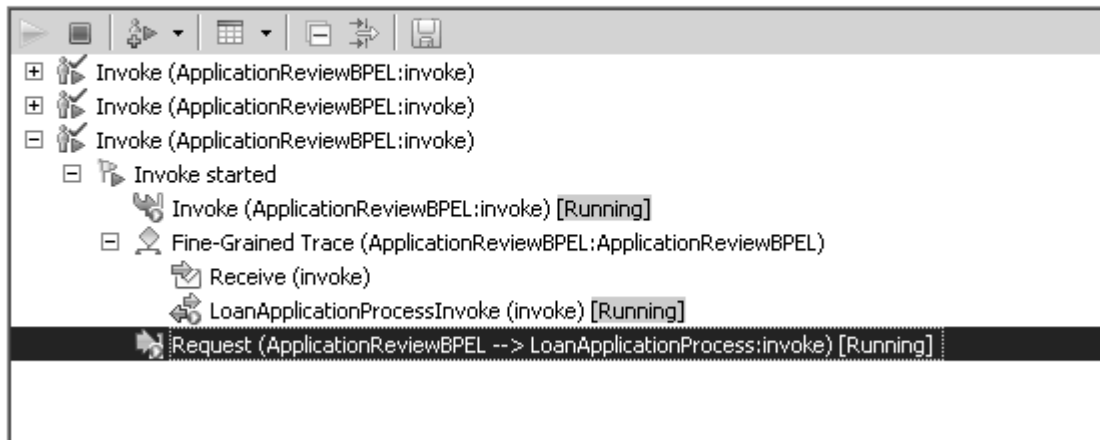
- \_\_\_ 10. Change the **companyName** value of the test to **AbcCo**.

AbcCo is not considered to be a valid company; therefore, the system service marks it as ineligible. The decision gateway forwards ineligible applications to the coach component.

- \_\_\_ 11. Click **Continue**. The process stops at the **Request** event, waiting for confirmation from the coach component.

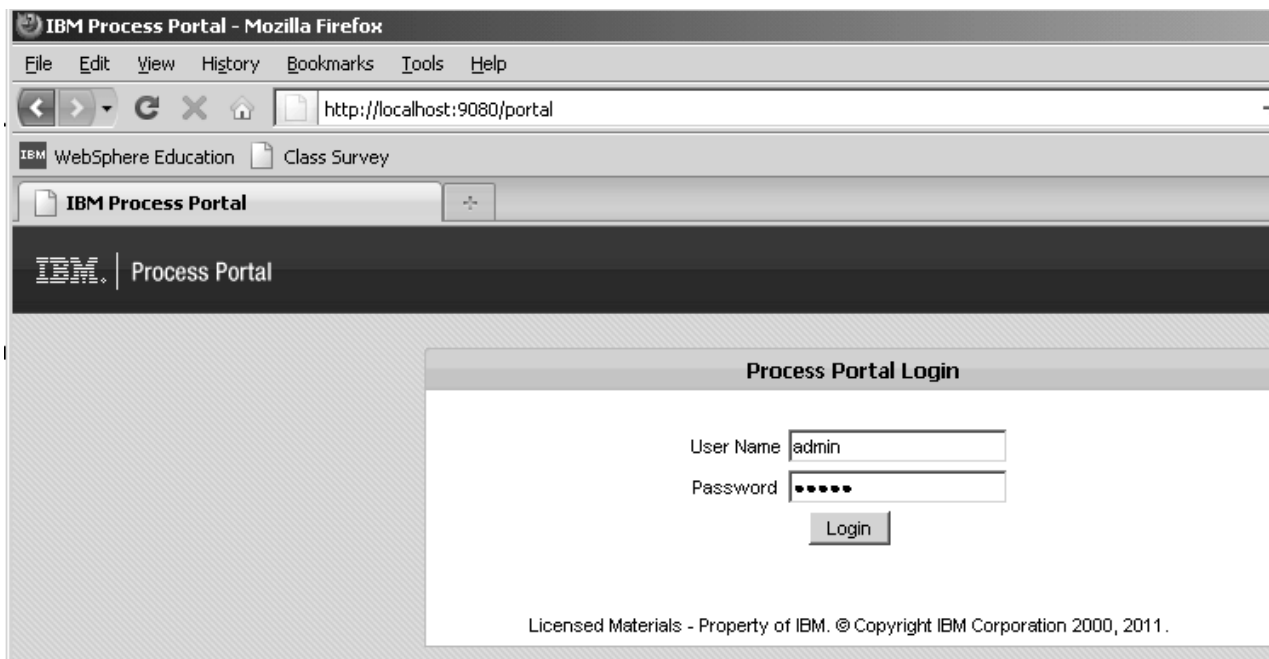
## Events

This area displays the events in a test trace. Select an event to display its properties in the General Properties and Detailed Properties sections. [More...](#)

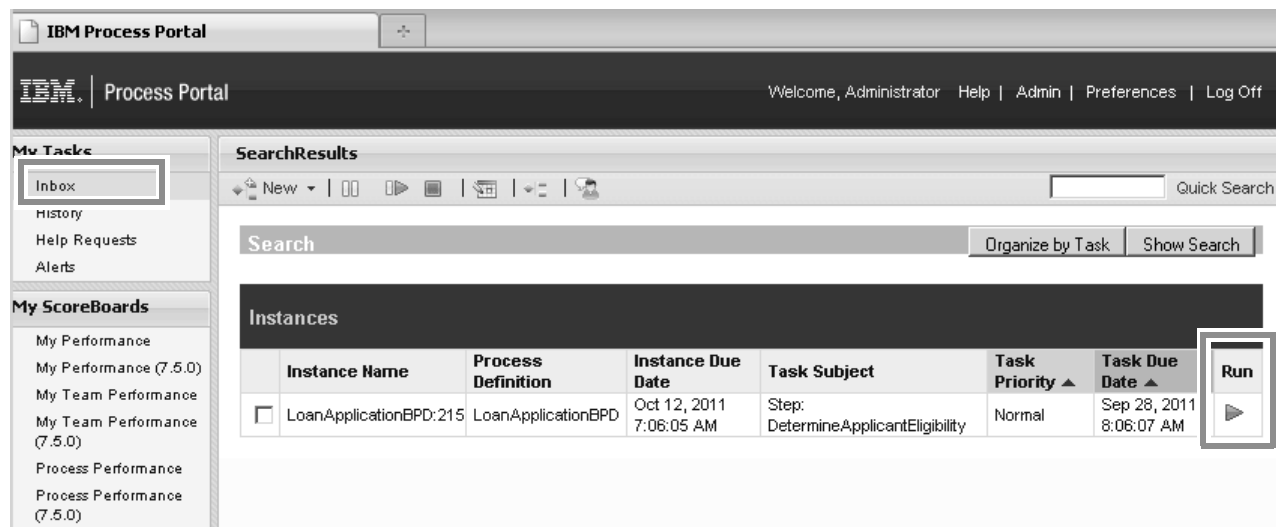


## Use the Process Portal to work with a coach component

- \_\_\_ 1. Open a browser window and navigate to: <http://localhost:9080/portal>
- \_\_\_ 2. On the **Process Portal Login** page, enter **User Name** and **Password** as admin.



- \_\_\_ 3. Click **Inbox** under **My Tasks** section on the left. The **Instances** page opens on the right. Notice the **Task Subject** column shows that the control is at the **ActivityCoach**. Click the green **Run** arrow button at the end of the row.



- \_\_\_ 4. Click **OK** in the task assignment dialog.
- \_\_\_ 5. The coach opens in a new window.

The screenshot shows the ActivityCoach window for a Loan Application. It contains several input fields for data entry, including Credit Score, Account Number, Is Eligible, Application Date, Company Name, Customer Country, Requested Amount, Credit Risk, and Application Decision. An 'Ok' button is at the bottom right.

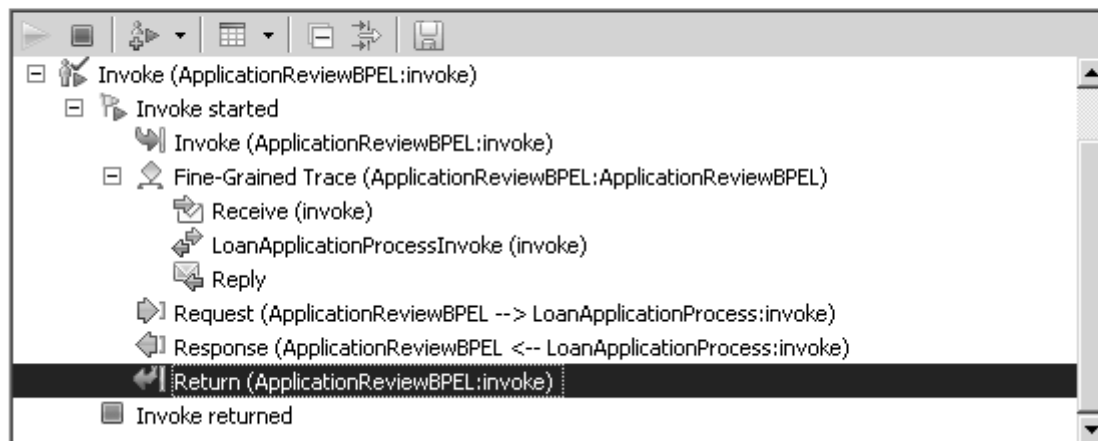
|                       |                          |
|-----------------------|--------------------------|
| Credit Score:         | 12                       |
| Account Number:       |                          |
| Is Eligible:          | <input type="checkbox"/> |
| Application Date:     | 10/14/2011               |
| Company Name:         | AbcCo                    |
| Customer Country:     |                          |
| Requested Amount:     | 0                        |
| Credit Risk:          |                          |
| Application Decision: | <input type="checkbox"/> |

- \_\_\_ 6. The values for the coach are not validated. Click **OK**. The window closes, and the **Inbox** refreshes. There are no more active instances.
- \_\_\_ 7. Switch back to the IBM Integration Designer, Integrated Test Client. The process completes with the response in the **Return** node.



## Events

This area displays the events in a test trace. Select an event to display its properties in the General Properties and Detailed Properties sections. [More...](#)



- \_\_\_ 8. Examine the values returned in the test client.

Return parameters:

Value Editor XML Source

| Name                | Type        | Value                  |
|---------------------|-------------|------------------------|
| loanResponse        | Application | [ab]                   |
| creditScore         | int         | [ab] 12                |
| accountNumber       | string      | [ab]                   |
| isEligible          | boolean     | [ab] false             |
| applicationDate     | dateTime    | [ab] 2011-10-14T00:00: |
| companyName         | string      | [ab] AbcCo             |
| customerCountry     | string      | [ab]                   |
| requestedAmount     | double      | [ab] 0.0               |
| creditRisk          | string      | [ab]                   |
| applicationDecision | boolean     | [ab] false             |

- \_\_\_ 9. Use the **Invoke** button to run other tests. Test the results for companies named **IBM** or **TestCo**. You may also test the credit risk when the credit score is 0, 5, or 10.
- \_\_\_ 10. Close IBM Integration Designer. If you are prompted to save the test client, click **No**.
- \_\_\_ 11. Close IBM Process Designer.
- \_\_\_ 12. Double-click the **Stop the Process Center server** shortcut on the desktop to stop the Process Center server.

## End of exercise





